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EDITOR  
WITMER STONE



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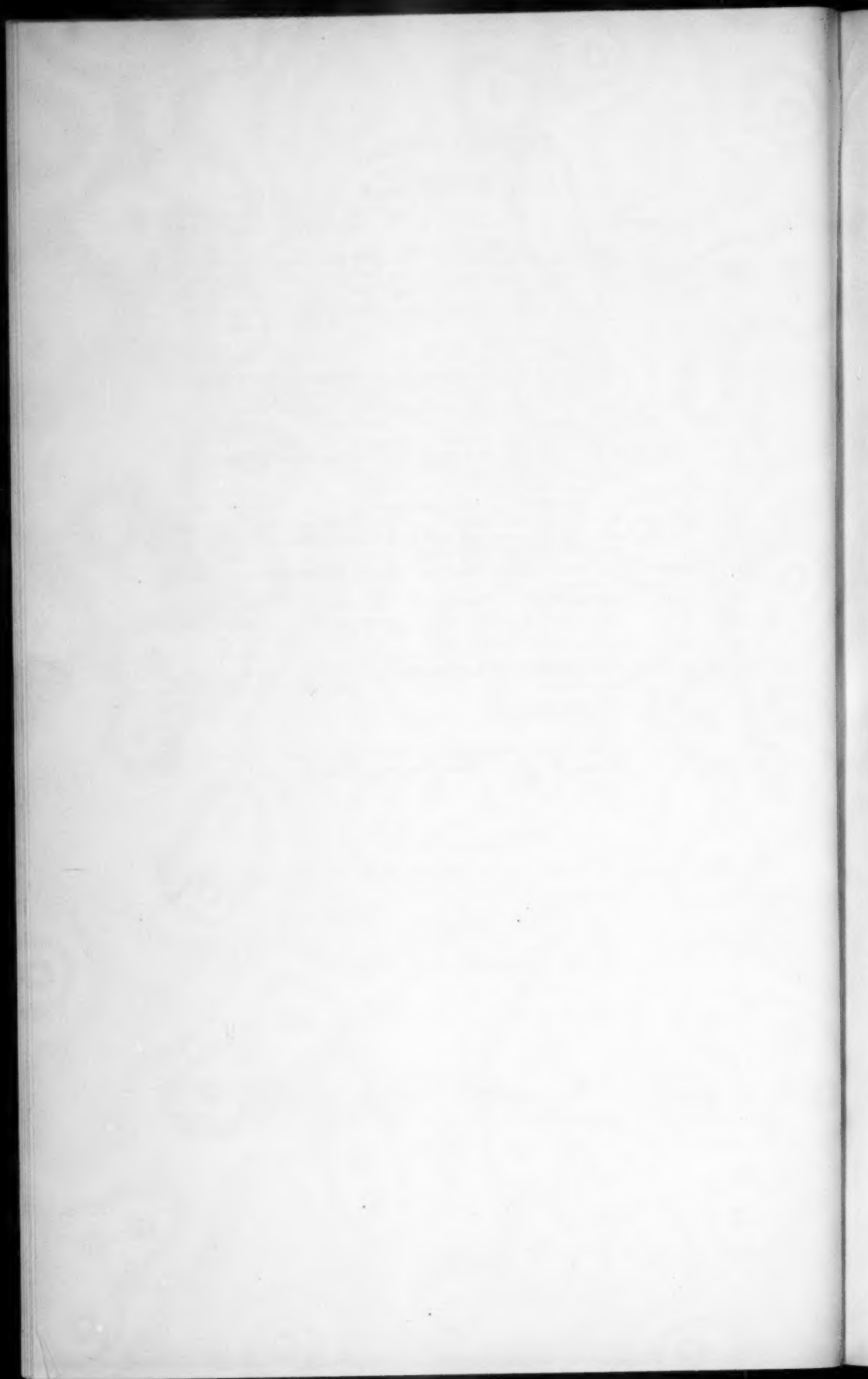
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- III. Goshawk and Young (Two views).
- IV. Goshawk, and Young (Two views).
- V. Sound Film (Two views).
- VI. Musical Notes and Bird Song (Two charts).
- VII. Edward William Nelson.
- VIII. Charles Wendell Townsend.
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BREDER, CHARLES MARCUS, JR., Aquarium, Battery Park, New York, N. Y.	1919
BRENNAN, ANDREW JAMES, 800 Cathedral Place, Richmond, Va.	1933
BRENNAN, BERNARD P., 554 St. John's Place, Brooklyn, N. Y.	1933
BRESLAU, LEO ARTHUR, 480 Canal St., New York, N. Y.	1932
BRETSCH, CLARENCE, 6201 East 4th Ave., Gary, Ind.	1924
BRIDGE, CHARLES CONRAD, 1938 Ryder St., Brooklyn, N. Y.	1934
BRIGGS, MRS. EDSON WORCESTER, 7760 16th St., N. W., Washington, D. C.	1928
BRIGHT, STANLEY, R. D. 2, Reading, Pa.	1921
BRISTOL, MISS FRANCES LOUISA, 169 Columbia Heights, Brooklyn, N. Y.	1921
BRITTEN, GEORGE SIDNEY, 807 Walnut Ave., Syracuse, N. Y.	1932
BRODE, DR. HOWARD STIDHAM, 433 E. Alder St., Walla Walla, Wash.	1923
BRODKORB, WILLIAM PIERCE, Mus. of Zool., Ann Arbor, Mich.	1925
BROKAW, HOWARD PYLE, 614 Mt. Prospect Ave., Newark, N. J.	1933
BROLEY, CHARLES LAVELLE, 842 Corydon Ave., Winnipeg, Man., Can.	1926
BRONSON, BARNARD SAWYER, 46 Lenox Ave., Albany, N. Y.	1920
BROOKS, ALONZO BEECHER, Ogleby Park, Wheeling, W. Va.	1933
BROOKS, DR. EARL, Noblesville, Ind.	1924
**BROOKS, REV. EARLE AMOS, Ogleby Park, Wheeling, W. Va.	1892
BROOKS, MISS MARGARET, Shore Road, Old Greenwich, Conn.	1933
BROOKS, MAURICE GRAHAM, French Creek, West Va.	1930
BROOMAN, RONALD CHARLES, c/o Bank of Montreal, Waterloo, Ont., Can.	1931
BROOMHALL, WILLARD HARLAN, Stockport, Ohio.	1929
BROWN, MAURICE, c/o Miss Bessie Penniman, Orleans, Cape Cod, Mass.	1922
BROWN, MISS BERTHA LOUISE, 53 Court St., Bangor, Maine.	1918
BROWN, FRANK REID, 1602 Walker Ave., Greensboro, N. C.	1930
BROWN, HARRY APPLETON, 40 Talbot St., Lowell, Mass.	1912
BROWN, HUBERT HARTFIELD, 42 Pacific Ave., Toronto 9, Ont., Can.	1924

BROWN, JOHN WILLCOX, White Oaks, Montchanin, Del.	1932
BROWN, MISS LILLA MAUD, 76 Charles St., Auburndale, Mass.	1931
BROWN, RALPH MINTHORNE, Librarian V. P. I. Library, Blacksburg, Va.	1933
BROWN, WILLIAM JAMES, Apt. 14, 4129 Dorchester St., West, Westmount, Que., Can.	1908
BROWN, WILLIAM LEWIS, U. S. Nat. Mus., Washington, D. C.	1927
BROWN, WILMOT WOOD, Apt. 12, Ave. Insurgentes 247, City of Mexico, Mexico.	1929
BROWNING, WILLIAM HALL, 103 Park Ave., New York, N. Y.	1911
BRUEN, FRANK, 22 High St., Bristol, Conn.	1908
BRUESTLE, BERTRAM GEORGE, 394 Whitney Ave., New Haven, Conn.	1929
BRUMBAUGH, CHALMERS SHERFEY, 2606 Elsinor Ave., Baltimore, Md.	1916
BRUNER, STEPHEN COLE, Estacion Agronomica, Santiago de las Vegas, Havana, Cuba	1926
*BRUUN, CHARLES ANAULTUS, 1510 Central Ave., Hot Springs, Ark.	1919
BRYAN, MRS. ALFRED HENRY, P. O. Box 414, Balboa Heights, Canal Zone.	1927
BRYANT, LINCOLN, JR., 149 Randolph Ave., Milton, Mass.	1927
BRYANT, WILLIAM LETCHWORTH, Park Museum, Providence, R. I.	1926
BRYSNS, OSCAR MCKINLEY, R. F. D. No. 1, McMillan, Luce Co., Mich.	1924
BUCKLE, JOHN WILLIAM, c/o Thomas Robertson & Co., P. O. Box 2460, Mon- treal, Can.	1928
BULL, MRS. CHARLES LIVINGSTON, Oradell, N. J.	1932
BULL, D. BERNARD, 4522 Brookline St., Seattle, Wash.	1933
BULLOCK, DILLMAN SAMUEL, Casilla 2D, Angol, Chile	1920
BUMP, GARDINER, Conservation Dept., Albany, N. Y.	1933
BUNDICK, MISS HARRIET ELLEN, 1465 Columbia Road, N. W., Washington, D. C.	1924
BURGESS, MRS. CALVIN LAFAYETTE, 1900 Memorial Ave., Lynchburg, Va.	1930
BURGESS, JOHN KINGSBURY, West St., Dedham, Mass.	1898
BURGESS, THORNTON WALDO, 61 Washington Road, Springfield, Mass.	1919
BURKE, DR. EDGAR, Medical Center, Jersey City, N. J.	1932
BURNHAM, STEWART HENRY, Dept. Botany, Cornell Univ., Ithaca, N. Y.	1919
BURROWES, RICHARD BERESFORD, Sycamore House, Lydd, Kent, Eng.	1931
BURT, DR. WILLIAM HENRY, Dept. Vert. Zool., Calif. Inst. Technology, Pasa- dena, Calif.	1925
BURTON, EDWARD MILBY, 18 Atlantic St., Charleston, S. C.	1929
BUSH, LEE, Cambria, Ill.	1934
BUSHBY, FRED WHEELER, 17 Washington St., Peabody, Mass.	1922
BUTLER, ARTHUR LENNOX, St. Leonard's Park, Horsham, Sussex, England.	1928
BUTTS, WILBUR KINGSLEY, 434 Barton St., Chattanooga, Tenn.	1927
BYRD, WALLACE, 102 Erskine St., Detroit, Mich.	1925
CADWALADER, CHARLES MEIGS BIDDLE, Acad. Nat. Sci., Philadelphia, Pa.	1924
CAHALANE, VICTOR H., Wildlife Div., Nat. Park Service, Washington, D. C.	1934
CAHN, DR. ALVIN ROBERT, Vivarium Bldg., Champaign, Ill.	1917
CAIRNS, DR. ALEXANDER, 209 Ampere Pkway., Bloomfield, N. J.	1928
CAIRNS, JOHN MACKAY, 333 Wheeler Ave., Scranton, Pa.	1926
CALDER, JAMES ALEXANDER, Rt. 1, Buena Park, Orange Co., Calif.	1926
CALHOUN, MISS EMMA MAY, 262 Commonwealth Ave., Boston, Mass.	1921
CALLENDER, JAMES PHILLIPS, 32 Broadway, New York, N. Y.	1903
CALVERT, EARL WELLINGTON, Cavourville, Durham Co., Ont., Can.	1919
CAMERON, LINDSAY DUNCAN, Hilly St., Mortlake, N. S. W., Australia.	1929



CAMP, CARA LOUIS, 635 N. Irving Ave., Scranton, Pa.....	1926
CAMPBELL, DR. JAMES ARCHIBALD, 13 Elm St., Toronto, Ont., Can.....	1927
CAMPBELL, JOHN SHERMAN, Bienville, La.....	1932
CAMPBELL, LOUIS WALTER, 304 Fearing Blvd., Toledo, Ohio.....	1929
CANNON, AUGUSTUS BARTOW, Lacoochee, Pasco Co., Fla.....	1930
CANTWELL, GEORGE GORDON, Mus. Hist., Art. & Sci., Exposition Park, Los Angeles, Calif.....	1929
CARLETON, GEOFFREY, 52 W. 94th St., New York, N. Y.....	1933
CARLISLE, GEORGE LISTER, JR., Norfolk, Conn.....	1920
CARMICHAEL, WILLIAM HALL, Carstairs, Alberta, Can.....	1931
**CARPENTER, REV. CHARLES KNAPP, 10920 S. Boyne Ave., Chicago, Ill.....	1894
CARPENTER, DR. CLARENCE RAY, Bard College, Annandale-on-Hudson, N. Y.....	1934
CARR, WILLIAM H., Dept. Education, Am. Mus. Nat. Hist., New York, N. Y.....	1932
CARRIGER, HENRY WARD, 5185 Trask St., Oakland, Calif.....	1913
*CARROLL, JAMES JUDSON, P. O. Box 356, Houston, Texas.....	1926
CARROLL, PROF. ROBERT PATRICK, 213 Maiden Lane, Lexington, Va.....	1932
CARTER, JOHN DARLINGTON, Lansdowne, Pa.....	1907
CARTER, THOMAS DONALD, Am. Mus. Nat. Hist., New York, N. Y.....	1921
CARTH, MRS. JEAN ELIZABETH (WYNN URQUHART), Morse Pond Grove, Wellesley, Mass.....	1922
CARTWRIGHT, BERTRAM WILLIAM, 238 Guildford St., Deer Lodge, Winnipeg, Man., Can.....	1924
CARTWRIGHT, WILLIAM JAMES, Williamstown, Mass.....	1920
CAULWELL, WILLIAM HENRY, 1015 Lawrence Ave., Lakewood, N. J.....	1932
CECCARELLI, FRANK EDWARD, 247 Hunter Ave., Philipse Manor, N. Y.....	1934
CHAMBERLAIN, EDWARD BURNHAM, 182 Ashley Ave., Charleston, S. C.....	1923
CHAMBERLAIN, GLEN DAVID, 22 Academy St., Presque Isle, Maine.....	1929
*CHAPIN, MISS ANGIE CLARA, c/o First National Bank & Trust Co., Ann Arbor, Mich.....	1896
CHAPMAN, CLARENCE EDWARD, Oakland, N. J.....	1924
CHAPMAN, MRS. FRANK MICHLER, 1158 Fifth Ave., New York, N. Y.....	1908
CHAPMAN, LAWRENCE BOYLSTON, 67 Chester St., Newton Highlands, Mass.....	1930
CHASE, DR. WARREN WILLIAM, U. S. Soil Erosion Service, La Crosse, Wis.....	1934
CHEESMAN, WILLIAM HANNOLD, Biological Survey, Washington, D. C.....	1920
CHENEY, REV. ROBERT FRANCIS, St. Mark's Rectory, Southborough, Mass.....	1922
CHILDS, EDWARD CHILDERFOLK, Norfolk, Litchfield Co., Conn.....	1930
CHIN, WESLEY, 108 Mechanic St., Worcester, Mass.....	1934
CHRISTOFFERSON, DR. KARL, Blaney, Schoolcraft Co., Mich.....	1921
*CHURCH, MISS CYNTHIA, The Point, Great Neck, L. I., N. Y.....	1926
CHURCHILL, ETHAN DICK, 2006 Ravenna Blvd., Seattle, Wash.....	1932
CLABAUGH, ERNEST DWIGHT, 44 Lenox Road, Berkeley, Calif.....	1924
CLARK, AUSTIN HOBART, 1818 Wyoming Ave., Washington, D. C.....	1919
CLARK, MISS EDITH MAY, 350 Maine St., Glastonbury, Conn.....	1929
CLARK, GEORGE ROBERTS, Cynwyd, Pa.....	1926
CLARK, HAROLD WILLARD, Angwin, Napa Co., Calif.....	1931
CLARKE, CHARLES EVERETT, 51 Summit Road, Medford, Mass.....	1907
CLARKE, CHARLES HENRY DOUGLAS, Dept. Zool., University of Toronto, Toronto, Ont., Can.....	1931
CLATTENBURG, ALBERT EDWIN, JR., Vice Consul, Amer. Consulate General, Athens, Greece.....	1929

CLAUSEN, ROBERT THEODORE, Dept. Botany, Cornell Univ., Ithaca, N. Y.....	1928
*CLEAVES, HOWARD HENDERSON, 8 Maretzek Court, Prince Bay, Staten Id., N. Y.....	1907
CLEBSCH, ALFRED, R. F. D. 1, Clarksville, Tenn.....	1934
CLEEVE, WILLIAM KINDGON, School of Arts, Bolsover St., Rockhampton, Queensland, Australia.....	1929
CLEVELAND, LLEWELLYN WILLIAM, West Chop Road, Vineyard Haven, Mass.....	1932
CLOW, MISS MARION, P. O. Box 163, Lake Forest, Ill.....	1929
COBB, DR. CLEMENT BIDDLE PENROSE, 1261 Madison Ave., New York, N. Y.....	1933
COBB, DR. STANLEY, 334 Adams St., Milton, Mass.....	1909
COBLE, AUDLEN DELBERT, 6047 N. Neva Ave., Norwood Park, Chicago, Ill.....	1934
COES, VINTON, JR., 11A Holden Hall, Princeton, N. J.....	1933
COFFEL, HAL HERBERT, Pennville, Jay Co., Ind.....	1927
COFFEY, BEN BARRY, JR., 1434 Bank of Commerce Bldg., Memphis, Tenn.....	1929
COFFIN, MRS. FRANCIS HOPKINSON, 1528 Jefferson Ave., Scranton, Pa.....	1921
COFFIN, MRS. PERCIVAL BROOKS, 5708 Kenwood Ave., Chicago, Ill.....	1905
COGGINS, HERBERT LEONARD, 2929 Piedmont Ave., Berkeley, Calif.....	1913
COKER, COIT MCLEAN, Box 950, Chapel Hill, N. C.....	1930
**COLBURN, ALBERT ERNEST, 510 S. Normandie Ave., Los Angeles, Calif.....	1891
COLEMAN, ROBERT HEMPHILL, 4 Green St., Charleston, S. C.....	1926
COLES, VICTOR, Hampton Institute, Hampton, Va.....	1934
COLLIAS, NICHOLAS ELIAS, 5211 Washington Blvd., Chicago, Ill.....	1932
*COLLINS, HENRY HILL, JR., 1213 St. Matthews Pl., Washington, D. C.....	1923
COLVIN, WALTER, Box 109, Arkansas City, Kansas.....	1932
COMMON, MRS. JAMES ALLISON, 141 Flower Ave. West, Watertown, N. Y.....	1934
COMMONS, MRS. FRANK WATKINS, 608 Chamber of Commerce, Minneapolis, Minn.....	1902
COMPTON, MISS DOROTHY MAY, 22 Wilton St., Princeton, N. J.....	1931
COMPTON, LAWRENCE VERLYN, Mus. Vert. Zool., Berkeley, Calif.....	1926
COMPTON, MISS LEILA ANNA, 846 East Bowman St., Wooster, Ohio.....	1930
CONE, EDWARD TONER, 1030 Summit Ave., Greensboro, N. C.....	1933
CONE, HUTCHINSON INGHAM, 23 Little Hall, Princeton, N. J.....	1933
CONGER, ALLEN CLIFTON, Ohio Wesleyan Univ., Delaware, Ohio.....	1919
CONGREVE, MAJOR WILLIAM MAITLAND, The White House, Llandyrnog, Den- bigh, N. Wales, Gt. Britain.....	1928
CONKEY, JOHN HOUGHTON, 11 Chestnut St., Ware, Mass.....	1929
CONKLIN, MRS. IDA MAUD, 94-36 220 St., Queens Village, N. Y.....	1930
COOK, MISS FANNYE ADDINE, 607 No. State St., Jackson, Miss.....	1924
COOK, GRANT MACDONALD, 2301 Elm St., Youngstown, Ohio.....	1924
COOK, WILLIAM BOLTON, 65 Wesley Ave., Port Chester, N. Y.....	1929
COOKMAN, ALFRED, 438 Baughman Ave., Claremont, Calif.....	1920
COOLIDGE, JOHN TEMPLEMAN, JR., Green St., Readville, Mass.....	1927
COOLIDGE, OLIVER HILL, Broad Brook Road, Bedford Hills, N. Y.....	1928
COOLIDGE, PHILIP TRIPP, 31 Central St., Bangor, Maine.....	1919
**COPE, FRANCIS REEVE, JR., Dimock, Pa.....	1892
COPE, MISS THEODORA MORRIS, 208 Dearborn Place, Ithaca, N. Y.....	1933
COPELAND, MANTON, 88 Federal St., Brunswick, Maine.....	1900
CORDIER, DR. ALBERT HAWES, 415 Benton Blvd., Kansas City, Mo.....	1920
CORSAN, GEORGE HEBDEN, Whittier College, Whittier, Calif.....	1930
CORYELL, SHERMAN, 1500 Hood Ave., Chicago, Ill.....	1921

COSBEY, JAMES, JR., 96 Jewett Parkway, Buffalo, N. Y.	1934
COUCH, LEO KING, Capitol Building, Olympia, Wash.	1922
COUES, DR. WILLIAM PEARCE, 12 Monmouth Court, Brookline, Mass.	1920
COURSEN, CHARLES BLAIR, 761 E. 69th Place, Chicago, Ill.	1928
COURT, EDWARD JOSEPH, 1723 Newton St., N. W., Washington, D. C.	1927
COVELL, DR. HENRY HALL, 1600 East Ave., Rochester, N. Y.	1918
COVERDALE, WILLIAM HUGH, 1020 Fifth Ave., New York, N. Y.	1928
COWELL, MRS. ARTHUR WESTCOTT, College Heights, State College, Pa.	1934
COX, ARTHUR MALCOLM, 1135 Spruce St., Winnetka, Ill.	1927
CRAIG, GLENN CLIFFTON, 2222 Cole St., Florence, Ala.	1923
CRAIG, WALLACE, P. O. Box 554, Brookline, Mass.	1912
CRAM, DR. ELOISE BLAINE, Zool. Div., B.A.I., Dept. Agr., Washington, D. C.	1929
CRANDALL, BOWEN SINCLAIR, 213 Raymond St., Chevy Chase, Md.	1927
CRANE, MISS CLARA LOOMIS, Dalton, Mass.	1904
*CRANE, CORNELIUS, Ipswich, Mass.	1930
CRANE, MRS. FRANCIS VALENTINE, South Street, Needham, Mass.	1931
CRANE, LESLIE, 161 Holly St., Rutland, Vt.	1922
CRÊTE, REV. FRÈRE FLORIAN VIATEUR, 7400 Rue St. Laurent, Montreal, Can.	1933
CROCKER, REV. WILLIAM TUFTS, 135 E. 35th St., New York, N. Y.	1920
CROFT, GORDON YAN, 2115 C St. N. W., Washington, D. C.	1930
CROMPTON, DAVIS H., 74 William St., Worcester, Mass.	1934
CROOK, COMPTON, 18 College St., Boone, N. C.	1933
CROSS, ALBERT ASHLEY, Huntington, Mass.	1918
CROUCH, JAMES ENSIGN, State Teachers College, San Diego, Calif.	1928
CROWELL, MISS JOANN OLIVIA, Dennis, Mass.	1918
CROWELL, MRS. PRINCE SEARS, 4 Maple St., Franklin, Mass.	1930
CROWELL, MISS SARAH BELLE, Dennis, Mass.	1924
CRUICKSHANK, ALLAN, 1985 Bedford Ave., Brooklyn, N. Y.	1933
CUBITT, HENRY GERALD FREDERICK, 12 Mountague Place, Poplar, London E. 14, England	1931
CUMMINGS, MISS EMMA GERTRUDE, 16 Kennard Road, Brookline, Mass.	1903
CUNNEEN, JAMES MICHAEL, 880 St. John's Place, Brooklyn, N. Y.	1933
CUNNINGHAM, JOSIAS, JR., Fernhill, Belfast, Northern Ireland	1928
**CURRIER, EDMONDE SAMUEL, 8541 N. Chicago Ave., Portland, Ore.	1894
CURRY, DR. HASKELL BROOKS, 522 S. Pugh St., State College, Pa.	1930
CURTIS, CHARLES PELHAM, 71 Ames Bldg., Boston, Mass.	1915
CURTIS, MISS ELIZABETH LONG, 5648 Beach Drive, Seattle, Wash.	1934
CURTIS, MARTIN (STUART), c/o Mrs. Geo. P. Cooke, "Kauluwai," Kaunakakai P. O., Molakai, Hawaii	1933
CUTLER, MRS. FREDERICK MORSE, 103 Butterfield Terrace, Amherst, Mass.	1923
CUTLER, DR. IRA EUGENE, 2122 S. Clayton St., Denver, Colo.	1926
CUTTER, MISS LUCIA BELLE, Jaffrey, N. H.	1920
CUYLER, W. KENNETH, 2050 E. 93rd St., Cleveland, Ohio	1923
DALEY, MRS. EDWIN WOOD, Olivera, Ulster Co., N. Y.	1925
DALEY, MISS MARY WOOD, Darling P. O., Delaware Co., Pa.	1920
DAMON, DAVID, 724 6th St., Ames, Iowa	1934
DANIELSON, KARL AUGUSTUS, Litchfield, Minn.	1928
DANISCH, JOHN ALBERT, 933 So. Wisconsin Ave., Oak Park, Ill.	1934
DARCUS, SOLOMON JOHN, Box 660, Penticton, B. C., Can.	1928



DARLING, JAY NORWOOD, Biol. Survey, Washington, D. C.....	1934
DARLINGTON, PHILIP JACKSON, JR., Mus. Comp. Zool., Cambridge, Mass.....	1923
DARROW, ROBERT WESLEY, Elizabethtown, N. Y.....	1928
DAUCHY, MISS RUTH, Head of Ford Ave., Troy, N. Y.....	1933
DAVEY, KENNETH FORSTER, 16 Muskoka Apts., Winnipeg, Man., Can.....	1930
DAVIDSON, MRS. GAYLORD, 4735 Dupont Ave., S., Minneapolis, Minn.....	1912
DAVIDSON, WILLIAM MARK, Insecticide Testing Lab., Beltsville, Md.....	1927
DAVIS, MISS BERTHA EUNICE, 29 Thayer St., Brookline, Mass.....	1920
DAVIS, CHARLES EVAN, Ellendale, N. Dak.....	1930
DAVIS, DORLAND JONES, 721 Elmwood Ave., Wilmette, Ill.....	1928
DAVIS, MISS EDDIE LEE, 1317 North Main St., Anderson, S. C.....	1928
DAVIS, ELI, R. R. 7, London, Ont., Can.....	1930
DAVIS, JOHN M., 227 Clark St., Eureka, Calif.....	1920
DAVIS, MALCOLM, 904 11th St., S. E., Washington, D. C.....	1930
DAVIS, RUSSELL SAGE, Clayton, Ill.....	1932
DAVIS, WILLIAM MORRIS, 535 Interlachen Ave., Winter Park, Fla.....	1934
DAY, CHESTER SESSIONS, 45 Englewood Ave., Brookline, Mass.....	1897
DEADERICK, DR. WILLIAM HEISKELL, c/o Daggett & Daggett, Marianna, Ark.....	1931
DEAN, ABRAM LAWRENCE, Blacksburg, Va.....	1933
DEAN, HUGH, 8162 East Jefferson Ave., Detroit, Mich.....	1931
DEAN, MISS MARJORIE, 511 South First Ave., Highland Park, N. J.....	1934
DEAN, ROBERT HENRY, 720 Quintard Ave., Anniston, Ala.....	1913
DEANE, H(ENRY) TOWNER, 1010 Hubbard Lane, Winnetka, Ill.....	1931
DEAR, LT. COL. LIONEL SEXTUS, P. O. Box 127, Port Arthur, Ont., Can.....	1928
DEARBORN, SAMUEL STEPHEN, 4 Newport Rd., Cambridge, Mass.....	1919
DEBES, VICTOR ALBERT, 1211 Folsom Ave., Prospect Park, Pa.....	1929
DECARIE, JULES ALBERT, 4500 Oxford Ave., Montreal, Quebec, Can.....	1932
DEGARIS, DR. CHARLES FRANCIS, Johns Hopkins Univ., Baltimore, Md.....	1923
DEIGNAN, HERBERT GIRTON, Chiangmai, Siam.....	1925
DELANG, THEODORE GEORGE, 1501 Forest Ave., Wilmette, Ill.....	1929
DELAFIELD, MRS. JOHN ROSS, 17 E. 79th St., New York, N. Y.....	1933
DELANO, RALPH, Presque Isle, Maine.....	1934
DELOACH, ROBERT JOHN HENDERSON, 5541 Dorchester St., Chicago, Ill.....	1910
DELURY, DR. RALPH EMERSON, Dominion Observatory, Ottawa, Can.....	1920
DEMILLE, JOHN BLAKENEY, 719 Victoria Ave., St. Lambert, Que., Can.....	1922
DENLEY, CHARLES FREDERICK, Rockville, Md.....	1927
DENMEAD, TALBOTT, 2830 St. Paul St., Baltimore, Md.....	1923
DENNY, MISS MARTHA, 111 High St., Brookline, Mass.....	1924
DENSMORE, MISS MABEL, 910 4th St., Red Wing, Minn.....	1910
DEPREE, CON, Macatawa Road, Holland Mich.....	1928
DERBY, DR. RICHARD, Oyster Bay, L. I., N. Y.....	1898
DÉRY, DR. DAVID ALEXIS, 98 St. Joseph St., Quebec, Can. (1921-1923).....	1932
DESMOND, THOMAS CHARLES, 56 Second St., Newburgh, N. Y.....	1929
DE TUYLL, BARON E., Heemskerk, Holland.....	1930
DEVITT, OTTO EDMUND, 31 Willowbank Blvd., Toronto 12, Ont., Can.....	1933
DICE, DR. LEE RAYMOND, Zool. Mus., Univ. Michigan, Ann Arbor, Mich.	
	(1918-27) 1931
DICKENS, MISS ELIZABETH, Block Island, R. I.....	1921
DICKEY, MRS. DONALD RYDER, Calif. Inst. Technology, Pasadena, Calif.....	1933
**DILLE, FREDERICK MONROE, P. O. Box 428, Rapid City, S. D.....	1892

DINGLE, EDWARD VON SIEBOLD, Huger, S. C.....	1920
DINGMAN, RUSSELL GORDON, Toronto, R. R. 2, York Mills, Ont., Can.....	1926
DISE, MRS. MARY DAMERON, 5 Liberty St., Charleston, S. C.....	1928
DIXON, EDWIN, Box 57, Unionville, Ont., Can.....	1930
DOAK, CHARLES BOONE, 233 Lockhart Hall, Princeton, N. J.....	1930
DOAK, WILLIAM CONWAY, 134 W. Coulter St., Germantown, Philadelphia, Pa.....	1927
DODGE, THOMAS HENRY, P. O. Box 366, Gallup, N. M.....	1930
DOLEMAN, MISS SUSAN AGNES, 55 Forbes Ave., Northampton, Mass.....	1933
DOLESE, DAVID, 9090 Dwight Ave., Detroit, Mich.....	1933
DOLMAN, MISS HELEN, 224 N. Huron St., Ypsilanti, Mich.....	1931
DONHO, MURRAY THOMPSON, The Balfour, 2000 16th St., N. W., Washington, D. C.....	1925
DOOLITTLE, EDWARD ARTHUR, Box 44, Painesville, Ohio.....	1921
DORSEY, GEORGE ANDREW, P. O. Box 163, Emory Univ., Ga.....	1926
DOUGLASS, DONALD WICKMORE, Bird Section, Univ. Mus., Ann Arbor, Mich.....	1929
DREVER, HORACE, 12 W. Mt. Airy Ave., Philadelphia, Pa.....	1928
DREW, MRS. HOWARD ALBERT, 47 Maple Grove, Barre, Vt.....	1934
DuBois, ALEXANDER DAWES, Christmas Lake Road, Route 2, Excelsior, Minn. (1905) 1918	
DuBois, JOHN SELLERS, Rim Rock Ranch, Wapiti, Wyo.....	1929
DUDLEY, JACK MURCHIE, 7 Calais Avenue, Calais, Maine.....	1931
DUDLEY, MRS. SARAH HARRIS, Lyman School Branch, Berlin, Mass.....	1924
DUER, HARRY ELDON, 519 Schofield Bldg., Cleveland, Ohio.....	1921
DuFour, MISS LAURA EDNA, 1524 Boyd Ave., Racine, Wis.....	1924
DuMONT, PHILIP ATKINSON, 2700 49th St., Des Moines, Iowa.....	1927
DUNBAR, MISS LULA, Elkhorn, Wis.....	1918
DUNHAM, MRS. FREDERIC GIBBONS, 450 Beverly Road, Ridgewood, N. J.....	1933
DUNKLEBERGER, HARRY WARREN, P. O. Box 6, Flourtown, Montgomery Co., Pa.....	1923
DUNN, JOHN WARNER GRIGG, 1033 Lincoln Ave., St. Paul, Minn.....	1923
DURFEE, MRS. OWEN, 243 Highland Ave., Fall River, Mass.....	1923
DYKE, ARTHUR CURTIS, 205 Summer St., Bridgewater, Mass.....	1902
EANES, ROBERT HILL, 1813 24th St., Galveston, Tex.....	1923
EARL, THOMAS MASON, Cedarville, Ohio.....	1921
EARLE, SAMUEL LOWNDES, 1223 Niazuma Ave., Birmingham, Ala.....	1928
EASTWOOD, SIDNEY KINGMAN, 301 S. Winebiddle Ave., Pittsburgh, 24, Pa.....	1925
EATON, MISS MARY STONE, 8 Monument St., Old Concord, Mass.....	1909
EATON, RICHARD JEFFERSON, 53 State St., Boston, Mass.....	1930
EATON, WARREN FRANCIS, 63 Normal Ave., Upper Montclair, N. J.....	1921
**EDSON, JOHN MILTON, Marietta Road, Bellingham, Wash.....	1886
EDSON, WILLIAM LLOYD GARRISON, 54 Fairview Ave., Rochester, N. Y.....	1916
EDWARDS, DAVID KEMP, 494 Lansdowne Road, Rockcliffe, Ottawa, Can.....	1926
EDWARDS, JAMES LELAND, 27 Stanford Place, Montclair, N. J.....	1928
EDWARDS, MRS. WILLARD HEMENWAY, JR., Fairhope, Ala.....	1930
EGGLESTON, JULIUS WOOSTER, 20 Copperas Hill, Cuttingsville, Vt.....	1929
EHEIM, JOSEPH MATHIOUS, 236 Adams St., S., Hutchinson, Minn.....	1927
EIKE, JAMES, Woodbridge P. O., Prince William Co., Va.....	1931
EKBLAW, WALTER ELMER, Clark University, Worcester, Mass.....	1911
*ELDRIDGE, EVERETT RAYMOND, JR., Chatham, Cape Cod, Mass.....	1928
ELLIOTT, CHARLES NEWTON, Dist. Forester, Augusta, Ga.....	1933

ELLIOTT, MRS. JANE SHIELDS, 1882 Columbia Road, N. W., Washington, D. C.....	1921
ELLIS, CHARLES WILLIAM HENRY, 1939 Biltmore St., N. W., Washington, D. C.....	1927
ELLIS, MISS MARY, 763 Bird Ave., Buffalo, N. Y.....	1931
*ELLIS, RALPH, 2420 Ridge Road, Berkeley, Calif.....	1924
ELLISON, REV. CHARLES STUART STANFORD, Hackettstown Rectory, Co. Carlow, Ireland.....	1930
ELROD, MRS. WALTER DEWITT, Box 103, Okmulgee, Okla.....	1924
*EMERSON, WILLIAM OTTO, Route 1, Box 39, Hayward, Calif.....	1916
EMERY, FRANK HARDIE, c/o Sandoz Chemical Works Ltd., 129 Adelaide St., W., Toronto 2, Ont., Can.....	1928
EMILIO, SHEPARD GILBERT, 7 Winter St., Salem, Mass.....	1922
EMLIN, ARTHUR COPE, "Awbury," Germantown, Philadelphia, Pa.....	1921
EMLIN, JOHN THOMPSON, JR., 36 W. School Lane, Germantown, Philadelphia, Pa.....	1925
*EMMET, COL. ROBERT TEMPLE, 48 Washington Ave., Schenectady, N. Y.....	1926
ENGELS, WILLIAM L., Box 31, Notre Dame, Ind.....	1931
ENGLEBY, THOMAS LESTER, 1002 Patterson Ave., Roanoke, Va.....	1934
ENGLISH, ALMON OWEN, 227 Granby St., Norfolk, Va.....	1928
ERICHSEN, WALTER JEFFERSON, Oxford, Fla.....	1919
ERICKSON, MISS MARY MARILLA, Mus. Vert. Zool., Berkeley, Calif.....	1932
ERNSBERGER, MILLARD CLAYTON, 107 Cook St., Ithaca, N. Y.....	1934
ERNST, MISS LILLIE R., 6058 Kingsbury Ave., St. Louis, Mo.....	1933
ERRINGTON, PAUL LESTER, Insectary, Iowa State College, Ames, Iowa.....	1932
ERSKINE, RICHARD, Wenonah, N. J.....	1926
ESTEN, SIDNEY RAYMOND, 4112 Graceland Ave., Indianapolis, Ind.....	1925
EVANS, CHARLES ALBERT, 701 15th Ave., S. E., Minneapolis, Minn.....	1933
EVANS, DR. EVAN MORTON, 550 Park Ave., New York, N. Y.....	1916
EYLES, DON EDGAR, 569 N. Highland Ave., N. E., Atlanta, Ga.....	1933
EYNON, ALFRED ERNEST, 166 Main St., Lonsdale, R. I.....	1934
EZRA, ALFRED, Foxwaite Park, Cobham, Surrey, England.....	1928
FAGAN, CHARLES LOUIS, Rt. 2, Box 58, Rahway, N. J.....	1922
FAIRMAN, MISS MARIAN, 4744 Kenwood Ave., Chicago, Ill.....	1920
FALARDEAU, EDWARD ADRIEN, Court of Appeal, Court House, Quebec, Can.....	1931
FARGO, WILLIAM GILBERT, 506 Union St., Jackson, Mich.....	1923
FARLEY, FRANK LEGRANGE, Camrose, Alberta, Can.....	1920
FARLEY, JOHN MOYER, JR., Avondale Rd., Gedney Farm Gardens, White Plains, N. Y.....	1922
FAY, SAMUEL PRESCOTT, 2 Otis Place, Boston, Mass.....	1907
*FEARING, GEORGE RICHMOND, 168 Beacon St., Boston, Mass.....	1924
FEIGHNER, MISS LENA VETA, 298-I So. Tremont St., Kansas City, Kans.....	1934
FELKER, JOHN OBERLE, Rt. 1, Box 403, Clayton, Mo.....	1933
FELGER, ALVA HOWARD, North High School, Denver, Colo.....	1898
FELL, MISS EMMA TREGO, Holicong, Bucks Co., Pa.....	1903
FERGUSON, B. W., 715 Hays St., San Antonio, Texas.....	1929
FERGUSON, HENRY LEE, 250 Park Ave., New York, N. Y.....	1920
*FERGUSON, HOMER LENOIR, Newport News Ship Bldg., Newport News, Va.....	1926
FERNEYHOUGH, JOHN BOWIE, 4020 Northrop St., Forest Hill, Richmond, Va.....	1930
FERRATT, MRS. ELIZABETH FENTRESS, 2310 Conn. Ave., N. W., Washington, D. C.....	

FERRIER, MISS JUDITH MADELINE, Hemsby Hall, Hemsby, Norfolk, England.	1928
FIELD, MISS CAROLINE LOUISE, 38 Hampton Court, 1461 Mountain St., Montreal, Can.	1928
FIELD, WILLIAM LUSK WEBSTER, Milton Acad., Milton, Mass.	1920
FINFROCK, CHARLES MILLARD, 3186 Oak Road, Cleveland Heights, Ohio.	1925
FINSTER, MISS ETHEL B(EULAH), Box 5015 Biltmore Sta., Asheville, N. C.	1930
FISHER, MISS ELIZABETH WILSON, 2222 Spruce St., Philadelphia, Pa.	1896
FISHER, DR. GEORGE CLYDE, Am. Mus. Nat. His., New York, N. Y.	1908
FISHER, WALTER TAYLOR, 134 So. La Salle St., Chicago, Ill.	(1907-14) 1932
FITZMAURICE, JAMES, 2624 Monroe St., N. E., Washington, D. C.	1932
FLEMING, JAMES MACARTHUR, Drumwalt, The Long Road, Cambridge, England	1928
FLETCHER, LAURENCE BROWN, 112 Pinckney St., Boston, Mass.	1921
FLETCHER, MRS. MARY ELIZABETH, Proctorsville, Vt.	1898
FLICK, MRS. CLAUDE H., 116 South Brown St., Jackson, Mich.	1933
FLOOD, MRS. AUBREY CLEVELAND, 24 Barbour Terrace, Bloomfield Hills, Mich.	1933
FLOYD, CHARLES BENTON, 454 Wolcott St., Auburndale, Mass.	1916
FLOYD, JOSEPH LARKE, 1009 Geo. D. Harter Bank Bldg., Canton, Ohio.	1921
FOLLETT, RICHARD EDWARD, Detroit Club, 712 Cass Ave., Detroit, Mich.	1926
FOOT, DR. NATHAN CHANDLER, 995 5th Ave., New York, N. Y.	1916
FORBES, RALPH EMERSON, 328 Adams St., Milton, Mass.	1917
FORD, EDWARD RUSSELL, 828 S. E. 2d Ct. Ft. Lauderdale, Fla.	1920
FORD, FRANCIS, 114 Allyn St., Holyoke, Mass.	1927
FORD, MISS LOUISE PETIGRU, "The Heights," Aiken, S. C.	1919
FORMAN, MISS ELIZABETH BETTERTON, Haverford, Pa.	1933
FORTIN, JAMES M., 8538 St. Louis Ave., Evanston, Ill.	1934
FORTNER, PROF. HARRY CADWALLADER, 102 Bidwell Ter., Rochester, N. Y.	1929
FOSTER, MISS CAROLINE ROSE, Mendham Road, Morristown, N. J.	1928
*FOSTER, FRANCIS APTHORP, Edgartown, Mass.	1918
*FOSTER, FRANK BRISBIN, P. O. Box 87, Haverford, Pa.	1916
*FOSTER, JOHN HAWLEY, P. O. Box H, Haverford, Pa.	1927
FOSTER, MAXWELL EVARTS, South Hamilton, Mass.	1932
**FOWLER, FREDERICK HALL, 221 Kingsley Ave., Palo Alto, Calif.	1892
FOWLER, HENRY WEED, Acad. Nat. Sciences, Philadelphia, Pa.	1898
FOX, MISS JENNIE ETHEL, Sparkill, Rockland Co., N. Y.	1925
FRANKS, ROSCOE WHITLOCK, Baldwin Bird Research Laboratory, Gates Mills, Ohio.	1932
FRANZEN, ALBERT JOHN, Field Museum Natural History, Chicago, Ill.	1934
FRAZAR, MRS. MARSTON ABBOTT, 84 Abbottsford Road, Brookline, Mass.	1925
FRAZIER, JOSEPH FRANKLIN, 724 Proctor Place, Independence, Mo.	1928
FREER, RUSKIN SKIDMORE, Lynchburg College, Lynchburg, Va.	1928
FRENCH, MRS. ALFRED JASON, R. F. D. 1, Box 40, Carlton, Ore.	1921
FRENCH, MRS. MENA VESTAL, Box 171, Wayland, Mass.	1923
*FREY, MRS. EDITH KRIEGER, 814 3rd St., Jackson, Mich.	1923
FRICKE, REINHOLD LEO, Carnegie Museum, Pittsburgh, Pa.	1927
FRIEDRICH, GEORGE WALTER, 3029 Belmont Ave., Chicago, Ill.	1925
FROST, ALLEN, 27 Holmes St., Poughkeepsie, N. Y.	1919
FRY, MRS. GLADYS GORDON, 66 Eagle Rock Way, Montclair, N. J.	1925
*FUGUET, HOWARD, 560 Bullitt Bldg., Philadelphia, Pa.	1919
FULLER, ARTHUR BENNETT, Broadmoor Rd., Midland Moor, Mentor, Ohio.	1922
FULLER, MRS. EDWARD ABBOTT, Brick House, Hancock, N. H.	1922



FULLER, HENRY CORBIN, 3704 Huntington St., Washington, D. C.....	1916
FURNISS, OWEN CECIL, 2203 1st Ave., W., Prince Albert, Sask., Can.....	1931
GANSON, MISS INA, 248 Oakland Park Ave., Columbus, Ohio.....	1934
GARDINER, CHARLES BARNES, 175 W. Main St., Norwalk, Ohio.....	1903
GARDNER, CAPT. LEON LLOYD, Fort Lawton, Wash.....	1924
GARDNER, MRS. WALTER HINCKLEY, Bucksport, Maine.....	1920
GARRETT, MRS. HARRY LEE, 1523 31st St., Galveston, Texas.....	1929
GATES, FRANK WARD RISDON, 33 Zion St., Hartford, Conn.....	1928
GAUL, MISS MIRIAM LOUISE 1530 N. Hoyne Ave., Chicago, Ill.....	1934
*GAUNTLETT, FREDERICK JOHN, 16 Primrose St., Chevy Chase, Md.....	1925
GEDDES, JOHN MACLAY, 331 High St., Williamsport, Pa.....	1924
GEIST, DR. ROBERT MILLER, Dept. Biology, Capitol University, Columbus, O.....	1923
GIANINI, CHARLES ALFRED, Poland, N. Y.....	1911
GIFFORD, PAUL COFFIN, 73 Whittier Ave., Olneyville, R. I.....	1921
GIGNOUX, CLAUDE, 73 Tunnel Road, Berkeley, Calif.....	1921
GILBERT, MRS. FREDERICK MILLEMON, Walpole, N. H.....	1919
GILES, NORMAN HENRY, JR., 959 Drewry St., N. E., Atlanta, Ga.....	1930
GILLESPIE, JOHN ARTHUR, 313 Sharp Ave., Glenolden, Pa.....	1923
GILLESPIE, MRS. JOHN ARTHUR, 313 Sharp Ave., Glenolden, Pa.....	1924
GILLIN, JAMES RHODS, Ambler, Pa.....	1921
GILLIS, FRANK, 508 Park St., Anoka, Minn.....	1922
GILMORE, MRS. ALBERT ESTES, 2215 E. Admiral Bldg., Tulsa, Okla.....	1927
GILMORE, ALBERT FIELD, 84 Garfield St., Watertown, Mass.....	1924
GLADDING, MRS. JOHN RUSSELL, Thompson, Conn.....	1912
GLEASON, MRS. CLARK HOUGH, Berrywood Wilds, Ada, Mich.....	1917
GLENN, DONALD, Box 9, Franklin, Pa.....	1923
GLOVER, PERCY HAMPTON, Broadlands, Fareham, Hampshire, Eng.....	1931
GLOYD, HOWARD KAY, Univ. Michigan, Ann Arbor, Mich.....	1920
GODFREY, W(ILLIAM) EARL, Box 252, Wolfville, Nova Scotia, Can.....	1931
GOELITZ, WALTER ADOLPH, 240 Little Neck Road, Douglaston, L. I., N. Y.....	1916
GOELLNER, REV. EUGENE, St. Anselm's College, Manchester, N. H.....	1928
GOETZ, CHRISTIAN JOHN, 3503 Middleton Ave., Cincinnati, Ohio.....	1929
GOLDSMITH, GLENN WARREN, Box 1611, University Station, Austin, Texas.....	1926
GOOD, NEWELL EMANUEL, Bur. Entomology, Washington, D. C.....	1927
GOODRICH, MISS JULIET THEODOSIA, Land o' Lakes, Vilas County, Wis.....	1904
GORDON, HARRY EDGAR, 307 Laburnum Crescent, Rochester, N. Y.....	1911
GORDON, HUNTLY KAY, 16 Cortland Ave., Toronto 12, Ont., Can.....	1933
GORDON, KENNETH LLEWELLYN, Dept. Zool., State Agric. Coll., Corvallis, Oregon.....	1924
GORDON, SETH EDWIN, 3715 Livingston St., N. W., Washington, D. C.....	1924
GORMLEY, A(LPHONSUS) LIGUORI, 79 John St., N., Arnprior, Ont., Can.....	1918
GORSKI, ARTHUR JACOB, Ephraim, Wis.....	1933
GOULD, MRS. J. AVERY, 38 Phillips St., Andover, Mass.....	1930
**GOULD, JOSEPH EDWARD, 1920 Springfield Ave., Campostella Heights, Nor- folk, Va.....	1889
GRANGE, WALLACE BYRON, Fish Creek, Door Co., Wis.....	1920
**GRANGER, WALTER WILLIS, Amer. Mus. Nat. Hist., New York, N. Y.....	1891
GRANQUIST, HARRY, 1802 Pennsylvania Ave. E., Warren, Pa.....	1928
GRANT, CLEVELAND PUTNAM, 620 Greenup St., Covington, Ky.....	1924
GRANT, WILLIAM WRIGHT, 816 S. Main St., Geneva, N. Y.....	1910



GRASETT, FRANK GODWIN, 535 Green Bay Road, Glencoe, Ill.	1923
GRAY, ALWYN EVERETT, 416 E. 14th St., Oklahoma City, Okla.	1923
GRAY, GEORGE W., Greenvale Farm, Poughkeepsie, N. Y.	1920
GREELEY, JOHN RICHARD, 1320 North Univ. Ave., Ann Arbor, Mich.	1925
GREEN, MRS. CHARLOTTE HILTON, 2512 White Oak Road, Raleigh, N. C.	1933
*GREEN, MORRIS MILLER, 39 Wyoming Ave., Ardmore, Pa.	1921
GREENE, EARL ROSENBURY, New Holland, N. C.	1921
GREENE, MISS MARGERY, 2199 Holland Ave., New York, N. Y.	1933
GREENFIELD, RAY HERBERT, 124 Maple Ave., Takoma Park, Md.	1929
GREENOUGH, HENRY VOSE, 39 Worthington Road, Brookline, Mass.	1901
GREENWALT, ERNEST J., Cedarville, Modoc Co., Calif.	1932
GREENWELL, GUY AYTCH, 900 East 7th St., Joplin, Mo.	1928
GREENWOOD, CHRISTOPHER, Rt. 1, Lausana, Alberta, Can.	1926
GREGORY, REV. CAREY ELLIS, Box 215, Morganton, N. C.	1922
GREGORY, TAPPAN, 19 So. LaSalle St., Chicago, Ill.	1931
GRIFFITH, MISS MARY CLARK, 119 Dean St., West Chester, Pa.	1930
GRIMES, SAMUEL ANDREW, 4661 Attleboro St., Jacksonville, Fla.	1925
GRINNELL, ELMER NATHAN, 3014 Dent Place, N. W., Washington, D. C.	1932
GRINNELL, MRS. JOSEPH, 3016 Benvenue Ave., Berkeley, Calif.	1931
GRISWOLD, JOHN AUGUSTUS, JR., Mus. Comp. Zool., Cambridge, Mass.	1933
GROFF, MISS FRANCES LLOYD, 19 West Union St., West Chester, Pa.	1929
GROMME, OWEN JUSTUS, Public Museum, Milwaukee, Wis.	1924
GROSS, WILLIAM ALBERT, 11 Boody St., Brunswick, Maine	1932
GRUDE, INGEBRET, Victor, Teller Co., Colo.	1929
*GUERNSEY, RAYMOND GANO, Eden Terrace, Poughkeepsie, N. Y.	1928
*GUILD, EASTHAM, Box 56, Papeete, Tahiti	1930
GUION, GEORGE SETH, 1701 American Bank Bldg., New Orleans, La.	1934
GUNTHERP, DR. HORACE, University Sta., Tucson, Ariz.	1919
GUTHRIE, DR. DONALD, Robert Packer Hospital, Sayre, Pa.	1930
HADELER, EDWARD WILLIAM, 336 S. State St., Painesville, Ohio	1920
HADLEY, ALDEN HERVEY, Nat. Assn. Audubon Societies, 1775 Broadway, New York, N. Y.	1906
HAGNER, DR. FRANCIS RANDALL, 1824 19th St., N. W., Washington, D. C.	1926
HAGUE, MISS FLORENCE, Sweet Briar College, Sweet Briar, Va.	1930
HAHN, WILLIAM, JR., Route 5, Greenwood, S. C.	1925
HAILE, HENRY PENNINGTON, Hanover, N. H.	1919
HAINES, ROBERT LEE, 111 Pinehurst Lane, Moorestown, N. J.	1924
HALDEMAN, MISS DORIS WEISS, E. Mt. Airy Ave., Philadelphia, Pa.	1927
HALE, ARTHUR THOMAS, JR., P. O. Box 753, Mission, Texas	1934
HALE, EZRA A., 218 Edgerton St., Rochester, N. Y.	1927
HALE, WILLIAM BARTON, Aqueduct, Bldg., Rochester, N. Y.	1928
HALL, WATSON, U. S. Soil Erosion Service, Coon Valley, Wis.	1934
HALLE, LOUIS JOSEPH, JR., R. D. 1, New Canaan, Conn.	1934
HALLMAN, ROY CLINE, Box 847, St. Augustine, Fla.	1928
HALPIN, ROBERT BLAKE, 2237 Eton Ridge, Madison, Wis.	1934
HALVERSON, DR. HAROLD MARTIN, 312 Pearl St., Yankton, S. Dak.	1924
HAMILL, MRS. LAFAYETTE C., 477 Grove St., Worcester, Mass.	1924
HAMILTON, ARTHUR LINCOLN, 836 North Raymond Ave., Pasadena, Calif.	1929
HAMILTON, DR. WILLIAM JOHN, JR., Dept. Zool., McGraw Hall, Cornell Univ., Ithaca, N. Y.	1924

HAMMOND, DR. ROLAND, 41 Boyleston Ave., Providence, R. I.....	1924
HAMPE, IRVING EDWARD, 34 No. Bentalon St., Baltimore, Md.....	1933
HAND, RALPH LEVI, 428 11th St., St. Maries, Idaho.....	1929
HANDLAN, JAMES TEE, JR., Phi Kappa Psi House, Spruce St., Morgantown, W. Va.....	1934
HANDLAN, JOHN WELTY, Oglebay Institute, Oglebay Park, Wheeling, W. Va.....	1933
HANDLEY, CHARLES OVERTON, 2719 Fendall Ave., Richmond, Va.....	1916
HANDSAKER, RALPH, Colo, Iowa.....	1922
HANKINSON, THOMAS LEROY, 96 Oakwood Ave., Ypsilanti, Mich.....	1897
HANN, DR. HARRY WILBUR, Zool. Dept., Univ. Mich., Ann Arbor, Mich.....	1930
HANNA, DR. G. DALLAS, Calif. Acad. Sci., San Francisco, Calif.....	1930
HANNA, RALPH ADOLPH, 2043 Mohawk St., Chicago, Ill.....	1931
HANNA, WILSON CREAL, 141 East F St., Colton, Calif.....	1919
HAPP, GEORGE BIPPUS, 5539 Page Ave., St. Louis, Mo.....	1933
HARDING, MRS. RICHARD BRUCE, 121 University Road, Brookline, Mass.....	1922
HARGRAVE, LYNDON LANE, Museum Northern Arizona, Box 203, Flagstaff, Ariz.....	1931
HARING, MRS. INEZ MARIA, Woodland, Ulster Co., N. Y.....	1921
HARKIN, HON. JAMES BERNARD, Commr. Canadian Nat. Parks, Ottawa, Can.....	1921
HARLEE, CAPT. HARRY LEE, 900 S. Irby St., Florence, S. C.....	1932
HARRINGTON, DR. PAUL, 813 Bathurst St., Toronto, Ont., Can.....	1922
HARRIOT, SAMUEL CARMAN, 200 West 58th St., New York, N. Y.....	1934
HARRIS, ALAN C., Griswolden, 60 Dreilinden Str., Lucerne, Switzerland.....	1934
HARRIS, ARTHUR LESLIE, Ultimo House, Kangaloon Rd., Bowrall, N. S. W., Australia.....	1929
HARRIS, LUCIEN, JR., c/o The Macmillan Co., 500 Spring St., N. W., Atlanta, Ga.....	1930
HARRIS, ROBERT DOUGLAS, Vermont Cottage, La Haule, St. Brelade, Jersey, Channel Ids.....	1929
HARRIS, WILLIAM GEORGE FOWLE, 13 Richmond St., Dorchester, Mass.....	1933
HARRIS, MRS. WILLIAM GRAY, 10 Harvard St., Worcester, Mass.....	1933
*HARRIS, WILLIAM PICKETT, 15410 Windmill Point Drive, Grosse Pointe Parks, Mich.....	1925
HARRISON, ED NEWTON, Box 324, Encinitas, San Diego Co., Calif.....	1934
*HARRISON, GEORGE LEIB, JR., 1520 Locust St., Philadelphia, Pa.....	1919
HARROWER, DAVID ELSON, Woodmere Academy, Woodmere, L. I., N. Y.....	1933
HART, CECIL, 132 N. 3rd St., Montebello, Los Angeles Co., Calif.....	1921
HART, WILLIAM STEPHEN, Box 1185, Montreal, Que., Can.....	1926
HARTER, SAMUEL GEORGE, Nat. Hist. Museum, Balboa Park, San Diego, Calif.....	1926
HARVEY, JOHN LeGRAND, Mercantile Bldg., Waltham, Mass.....	1916
HARVEY, ROGER DOUGLAS, 304 Allegany Ave., Coudersport, Pa.....	1927
HARWELL, CHARLES ALBERT, Yosemite National Park, Calif.....	1929
HASBROUCK, HENRY CRANE, 22 Franklin Place, Montclair, N. J.....	1920
*HASKELL, MISS SADIA, 3828 30th St., Mt. Rainier, Md.....	1916
HASTINGS, WALTER ERNEST, Box 181, Howell, Mich.....	1921
HATHAWAY, ALTON HASTINGS, 25 Oakland St., Lexington, Mass.....	1921
HATHAWAY, MRS. EMILY LOUISE, Spring St., Rt. 1, W. Bridgewater, Mass.....	1920
HATHAWAY, HARRY SEDGWICK, corner of Riverside and Thorn Aves., South Auburn, Cranston, R. I.....	1897
HAULTAIN, CHARLES FREDERICK, Port Hope, Ont., Can.....	1923
HAUTHAWAY, CLARENCE LITTLE, 638 Summer St., Lynn, Mass.....	1927
**HAVEMEYER, HENRY OSBORNE, Mahwah, N. J.....	1893

HAVEMEYER, HENRY OSBORNE, JR., Mahwah, N. J.....	1919
HAVEN, HERBERT MAURICE WEST, 500 Forrest Ave., Portland, Maine.....	1920
HAVERSCHMIDT, FRANCOIS, 17 Van Hogendorpstraat, Utrecht, Holland.....	1928
HAYES, MRS. EDWIN AUGUSTUS, 466 Elm St., New Haven, Conn.....	1927
HEBARD, FREDERICK V., 8001 Navahoe St., Chestnut Hill, Philadelphia, Pa.....	1930
HEGNER, FRANCIS ARNOLD, 513 Hill St., Sewickley, Pa.....	1924
HEILNER, VAN CAMPEN, Spring Lake Beach, N. J.....	1925
HEINE, MISS ENID R., 123 North Street, Danbury, Conn.....	1932
HELPER, MISS LOUISE, 111 Ninth St., Watkins Glen, N. Y.....	1929
*HELME, ARTHUR HUDSON, 223 Bayview Terrace, Port Jefferson, N. Y.....	1888
HELMUTH, DR. WILLIAM TOD, 3rd, 667 Madison Ave., New York, N. Y.....	1923
HEMPHILL, FREDERICK ARNOLD, 128 Broad St., Elizabeth, N. J.....	1929
HENDERSON, ARCHIBALD DOUGLAS, Belvedere, Alberta, Can.....	1924
HENDERSON, WALTER CLEAVELAND, 8 Magnolia Parkway, Chevy Chase, Md.....	1917
HENNESSY, THOMAS SANSFIELD, 19 Loretta St., Ottawa, Ont., Can.....	1930
HENRY, CORDIA JOHN, 425 Ann St., East Lansing, Mich.....	1934
HENSHAW, SAMUEL, 28 Fayerweather St., Cambridge, Mass.....	1924
HERBST, MRS. THEODORE WILHELM, Faircourt, Bernardsville, N. J.....	1931
HERING, PAUL E., 239 Pearl St., Medina, N. Y.....	1934
HERMAN, DR. WILLIAM CEPHAS, 19 West 7th St., Cincinnati, Ohio.....	1921
HERRICK, MISS ELEANOR ELIZABETH, P. O. Box 729, Woodmere, L. I., N. Y.....	1933
HEYDWEILLER, MISS A(MELIA) MARGUERITE, 369 Seneca Parkway, Rochester, N. Y.....	1932
HIBBARD, CLAUDE WILLIAM, Box 52, Mammoth Cave, Ky.....	1934
HIBBERT, MRS. HAROLD, 17 Parkside Place, Cote de Neiges Road, Montreal, Que., Can.....	1926
HICKIE, PAUL FRANKLIN, Edwin S. George Reserve, Pinckney, Mich.....	1931
*HICKS, LAWRENCE EMERSON, Botany Dept., Ohio State Univ., Columbus, O.....	1929
*HIGHAM, WALTER ERNEST, The Oaks, Clayton-le-Dale, near Blackburn, Eng- land.....	1928
HILDRETH, MISS ELLEN ELIZABETH, 126 Coolidge Hill, Cambridge, Mass.....	1922
HILL, FREDERICK WILLIAM, 690 Bluff St., Glencoe, Ill.....	1933
HILL, JULIAN WERNER, 707 Coverdale Road, Wilmington, Delaware.....	1934
HILL, MRS. THOMAS ROBY, 4011 Baltimore Ave., Philadelphia, Pa.....	1903
HINCHMAN, RICHARD MAY, 501 Randolph Ave., Milton, Mass.....	1930
HINCKLEY, GEORGE LYMAN, 113 Touro St., Newport, R. I.....	1912
HINE, ASHLEY, 8131 Euclid Ave., Chicago, Ill.....	1922
HINSHAW, THOMAS DOANE, 1908 Scottwood Ave., Ann Arbor, Mich.....	1930
**HITCHCOCK, FRANK HARRIS, Daily Citizen Bldg., Tucson, Ariz.....	1891
HIX, GEORGE EDWARD, 337 72nd St., Brooklyn, N. Y.....	1904
HOECHSTETTER, MRS. S. S., 427 E. St. Johns St., Lake City, Fla.....	1933
HOFFMAN, EDWARD CARLTON, 418 Schofield Bldg., Cleveland, Ohio.....	1928
HOFFMAN, IRVIN NEWTON, R. F. D. No. 6, Bethesda, Md.....	1924
HOFFMANN, DR. BERNHARD, Uhlandstr. 16, Dresden A, Germany.....	1929
HOFFMANN, PAUL WILLIAM, 3557 N. 12th St., Milwaukee, Wis.....	1924
HOLLAND, HAROLD MAY, Box 515, Galesburg, Ill.....	1910
HOLLISTER, GEORGE BUELL, 4 E. 5th St., Corning, N. Y.....	1919
HOLMAN, JOHN PAULISON, Fairfield, Conn.....	1922
HOLT, MRS. MARGARET LANDER, La Crosse, Wis.....	1933
HONYWILL, ALBERT WILLIAM, JR., 70 Virginia Park, Detroit, Mich.....	1907

HOPE, CLIFFORD ERNEST, Roy. Ontario Mus. Zool., 100 Queen's Park, Toronto, Ont., Can.....	1933
HOPKINS, GEORGE IRVING, 841 Beech St., Manchester, N. H.....	1922
HORNBOG, VILJO, Porvoo, Finland.....	1932
HORSEY, RICHARD EDGAR, Highland P'k, Reservoir Ave., Rochester, N. Y.....	1919
HORSFALL, ROBERT BRUCE, c/o Nature Magazine, 1214 16th St., N. W., Washington, D. C.....	1905
HOUGHTON, CLARENCE, East Greenbush, Rennselaer Co., N. Y.....	1920
HOWARD, DR. HILDEGARDE, 1947 West 64th Place, Los Angeles, Calif.....	1928
HOWARD, WILLIAM JOHNSTON, Michigan Junior School, Onkama, Mich.....	1931
HOWATT, DR. GILBERT ANDREW, 1922 F St., Eureka, Calif.....	1924
HOWE, CLIFTON DURANT, Univ. Toronto, Toronto, Ont., Can.....	1921
HOWELL, JOSEPH CORWIN, 914 Lucern Terrace, Orlando, Fla.....	1928
HOWELL, ROYSTON WYNTER, Queens Chambers, 6 Victoria Parade, Torquay, Devon, England.....	1934
HOWLAND, RANDOLPH HUGHBERT, P. O. Box 51, Hudson Terminal, New York, N. Y.....	1903
HUBBARD, MRS. FRANK DEXTER, 81 Barnett St., New Haven, Conn.....	1923
HUBBARD, HUGH WELLS, American Board Mission, Paoingfu, China.....	1928
HUBER, MRS. WHARTON, 225 St. Mark's Square, Philadelphia, Pa.....	1926
HUDSON, GEORGE ELFORD, 4635 Knox St., Lincoln, Nebr.....	1928
HUFF, PROF. NED L., 1219 7th St., S. E., Minneapolis, Minn.....	1924
HUGHES, GEORGE THOMAS, Box 153, Plainfield, N. J.....	1919
HUGHES, DR. WILLIAM ELLERY, 3945 Chestnut St., Philadelphia, Pa.....	1920
HULBURT, MILTON FRANK, Lock Box 502, Reedsburg, Wis.....	1934
HULSBURG, EDMUND FRANK, 340 So. Catherine Ave., La Grange, Ill.....	1934
HUMPHREY, MRS. HARRY BAKER, Cabin John, Md.....	1933
HUMPHREYS, WILLIAM WIRT, 15 Limehouse St., Charleston, S. C.....	1932
HUNN, JOHN TOWNSEND SHARPLESS, 1218 Prospect Ave., Plainfield, N. J.....	1895
HUNT, ORMAND EDSON, 421 Highland Road, Ann Arbor, Mich.....	1933
HUNT, MISS HELEN CUMMINGS, Washington, Conn.....	1928
HUNT, MISS LUCY OLCOTT, 185 Beacon St., Hartford, Conn.....	1919
HURD, MISS FRANCES AMELIA, 119 West Ave., South Norwalk, Conn.....	1919
HUTCHINSON, GEORGE ROWLAND, P. O. Box 770, Auckland, New Zealand.....	1930
HUTT, DR. FREDERICK BRUCE, Dept. Poultry Husbandry, Cornell University, Ithaca, N. Y.....	1932
*HUYLER, COULTER DUNHAM, 420 Lexington Ave., New York, N. Y.....	1928
HUYLER, MRS. COULTER DUNHAM, Greenwich, Conn.....	1928
HYDE, ARTHUR SIDNEY, Dept. Biol., Temple Univ., Philadelphia, Pa.....	1921
HYSLOP, SAMUEL, 42 Bellevue St., Newton, Mass.....	1919
IAMS, HENRY PEARLE, R. F. D. 9, Knoxville, Tenn.....	1922
**INGERSOLL, ALBERT MILLS, 908 F St., San Diego, Calif.....	1885
INGERSOLL, MRS. RAYMOND VAIL, 380 Clinton Ave., Brooklyn, N. Y.....	1933
INGRAHAM, EDWARD ANDREWS, 444 Clinton Ave., Brooklyn, N. Y.....	1930
INGRAM, GEOFFREY CHESELDEN SPENCER, 22 Waterloo Road, Roath, Cardiff, South Wales.....	1928
ISENBERG, A. H., 286 Atherton Ave., Menlo Park, Calif.....	1929
**ISHAM, CHARLES BRADLEY, 909 Valley Rd., Upper Montclair, N. J.....	1891
IVES, FREDERICK MANLEY, JR., 24 Fells Road, Winchester, Mass.....	1930
JACKSON, DR. HARTLEY HARRAD THOMPSON, Biological Survey, Washington, D. C.....	1910



JACOBI, DR. ARNOLD, Museum fur Tierkunde, Dresden 1, Germany.....	1929
JACOBY, THOMAS EDWIN, 816 B St., N. E., Washington, D. C.....	1931
JACOT, EDWARD CESAR, Box 462, Prescott, Arizona.....	1923
JAMES, MRS. ALVIN ORLANDO, 4100 Grove Ave., Richmond, Va.....	1925
JAMES, NORMAN, P. O. Drawer D2, Baltimore, Md.....	1913
JANVRIN, DR. EDMUND RANDOLPH PEASLEE, 38 East 85th St., New York, N. Y. 1919	
JARRARD, MISS BERMA LUCILLE, 54 Briarcliffe Circle, N. E., Atlanta, Ga.....	1928
JAY, WILLIAM, 5358 Winghocking Terrace, Germantown, Philadelphia, Pa.....	1921
JEFFERS, EDMUND E., 531 Thompson St., Ann Arbor, Mich.....	1934
JELIER, FRANCISCUS PETER, Groote Visscherijstraat 19a, Rotterdam, Holland.....	1928
JENKINS, LLOYD SMITH, 10 Ashmore Road, Worcester, Mass.....	1932
JENKS, RANDOLPH, Mt. Kemble, Morristown, N. J.....	1928
JENNER, WILLIAM ALEXANDER, 806 W. Davis St., Fayette, Mo.....	1932
JENNINGS, DR. GEORGE HERMAN, Box 235, Jewett City, Conn.....	1918
JENNINGS, RICHARD DUDLEY, 227 Harrison St., East Orange, N. J.....	1913
JENNISON, FRANCIS JOSEPH, Seminole Club, Jacksonville, Fla.....	1925
JENSEN, JENS KNUDSEN, 201 Canyon Road, Santa Fe, N. M.....	1912
JENSEN, JESSE PETER, Box 364, Dassel, Minn.....	1926
JOHNSON, ARCHIBALD, Stewart, Nev.....	1930
*JOHNSON, CHARLES ALFRED, 1030 15th St., Denver, Colo.....	1927
JOHNSON, PROF. CHARLES EUGENE, College Forestry, Syracuse, N. Y.....	1919
JOHNSON, F., Downham Tavern, Bromley, Kent, England.....	1934
JOHNSON, JULIUS MONROE, 293 S. Pleasant Ave., Ridgewood, N. J.....	1933
JOHNSON, PROF. ROBERT ANTHONY, 148 East Street, Oneonta, N. Y.....	1930
JOHNSTON, ISRAEL HAYLOCK, Conservation Comm., Charleston, W. Va. (1922-33),.....	1934
JONES, FRED MINSON, Box 105, Abingdon, Va.....	1931
JONES, GORDON WILLIS, 2314 Hawthorne Ave., Richmond, Va.....	1933
JONES, HAROLD CHARLES, 352 W. College St., Oberlin, Ohio.....	1924
JONES, JOHN COURTS, 3224 19th St., Washington, D. C.....	1930
JONES, DR. LOMBARD CARTER, Falmouth, Mass.....	1917
JONES, NELSON TAYLOR, Royal Ontario Mus., Toronto 5, Ont., Can.....	1925
JONES, S(OLOMON) PAUL, 509 West Ave., North, Waukesha, Wis.....	1920
JONES, STERLING P., 690 Bonita Ave., Webster Groves, Mo.....	1933
JONES, WILLIAM FROST, Norway, Maine.....	1918
**JORDAN, ALVAH HENRY BEDELL, Lowell, Wash.....	1888
JUNG, CLARENCE SCHRAM, 4612 No. Oakland Ave., Milwaukee, Wis.....	1921
JUNK, DR. WILHELM, Scheveningsche Weg 74, The Hague, Holland.....	1928
KASSOY, IRVING, 608 5th Ave., New York, N. Y.....	1929
KEALY, MISS LULU, 14 Blackburn Ave., Ottawa, Ont., Can.....	1926
KEAYS, JAMES EDWARD, 328 St. George St., London, Ont., Can.....	1899
KEESLER, RAY LEWIS, Box 147, Forestville, Butler Co., Pa.....	1924
KELLEY, NORMAN PANTON, 625 Oriole Parkway, Toronto, Ont., Can.....	1927
KELLOGG, JOHN P., 855 E. Westminster Road, Lake Forest, Ill.....	1934
KELLOGG, PAUL, 11 Church St., Cortland, N. Y.....	1929
KELLY, MRS. GEORGE EARLE, 1311 Grand St., Alameda, Calif.....	1929
KELLY, DR. HOWARD ATWOOD, 1406 Eutaw Place, Baltimore, Md.....	1934
KELLY, WILLIAM NIELSON, Terminal City Club, Vancouver, B. C., Can.....	1927
KELSO, LEON HUGH, Biol. Survey, Dept. Agr., Washington, D. C.....	1929
KENNEDY, DR. HARRIS, Readville 37, Mass.....	1916



*KENNEDY, HARRY HOWARD, Box 710, Reno, Nev.....	1920
KENT, DUANE ELSON, 39 Moore Place, Rutland, Vt.....	1913
KENT, EDWARD GRUET, 9 Highland Ave., Madison, N. J.....	1919
KENT, EDWIN CLARK, 80 William St., New York, N. Y.....	1907
KENYON, KARL WALTON, 6001 Bellevue Road, La Jolla, Calif.....	1933
KEPNER, MRS. CLYDE METZGER, Pikesville Br. P. O., R. D. 7, Baltimore, Md.....	1922
KERMODE, FRANCIS, Provincial Museum, Victoria, B. C., Can.....	1926
*KIDDER, NATHANIEL THAYER, Milton, Mass.....	1906
KILGORE, WILLIAM, JR., Mus. Nat. Hist., Univ. Minn., Minneapolis, Minn....	1906
KILGUS, JOHN FRANK, JR., 422 High St., Williamsport, Pa.....	1922
KING, LeROY, 1 Cedar St., New York, N. Y.....	1901
KINGSBURY, MISS ELIZABETH WINCHESTER, 72 Barrow St., New York, N. Y....	1931
KIP, HERBERT ZABRISKIE, Connecticut College, New London, Conn.....	1932
*KIRKHAM, STANTON DAVIS, 152 Howell St., Canandaigua, N. Y.....	1910
KIRKPATRICK, DONALD NORRIS, 710 Clay Ave., Scranton, Pa.....	1926
KIRKPATRICK, HARRY CLAY, 1166 Water St., Meadville, Pa.....	1921
**KIRKWOOD, FRANK COATES, Phoenix, Baltimore Co., Md.....	1892
*KIRN, ALBERT JOSEPH BERNARD, Box 157, Somerset, Texas.....	1918
KITTREDGE, JOSEPH, JR., Div. Forestry, Univ. California, Berkeley, Calif.....	1910
KLINCK, NORMAN E., 38 West Parade Ave., Buffalo, N. Y.....	1928
KLOSEMAN, MISS JESSIE EMMA, 60 Charlesgate East, Suite 127, Boston, Mass.....	1909
*KLOTZ, CHARLES DOLESE, P. O. Box 142, Pearisburg, Va.....	1923
KNAEBEL, ERNEST, 3707 Morrison St., Washington, D. C.....	1906
KNAPP, ELMER, R. R. 2, Troy, Pa.....	1929
KNAPPEN, MISS PHOEBE MALURA, 2925 Tilden St., N. W., Washington, D. C.....	1924
*KNICKERBOCKER, CHARLES KENNEDY, 410 N. Michigan Ave., Chicago, Ill....	1922
KOBBE, FREDERICK WILLIAM, 1155 Park Ave., New York, N. Y.....	1921
KRAMER, THEODORE CHRISTIAN, Dept. Anat., Yale Univ. Med. School, 333 Cedar St., New Haven, Conn.....	1930
KRAUS, PHILIP BERKELEY, 92 Keene St., Providence, R. I.....	1930
KRETZMANN, DR. PAUL EDWARD, 801 DeMun Ave., St. Louis, Mo.....	1913
KRUG, HOWARD HENRY, Chesley, Ont., Can.....	1932
KUBICHEK, WESLEY FRANK, Biol. Survey, Washington, D. C.....	1919
KUERZL, JOHN FRANCIS, 978 Woodycrest Ave., Bronx, New York, N. Y.....	1925
KUMMERLOEWE, DR. HANS, Cichoriusstrasse 6 III, Leipzig-C., Germany.....	1928
KUSER, JOHN DRYDEN, Bernardsville, N. J.....	1910
LABARTHE, JULES, c/o N'Kana Mine, N'Kana via N'Dola, Northern Rhodesia, S. Africa.....	1920
LABRIE, WILLIE, Kamouraska (Moulin), Que., Can.....	1927
LACEY, MILTON SILLIMAN, 875 Maine St., Bridgeport, Conn.....	1925
LADD, MISS MABEL CLAIR, 5705 Woodward Ave., Detroit, Mich.....	1931
LaDOW, STANLEY VAUGHAN, 56 W. 12th St., New York, N. Y.....	1913
LAING, HAMILTON MACK, Comox, B. C., Can.....	1917
LaMAR, MISS KATE, 1231 39th St., Des Moines, Iowa.....	1934
LAMB, CHESTER CONVERSE, Museum Vert. Zool., Berkeley, Calif.....	1926
LAMBERT, DR. ADRIAN VAN SINDEREN, 168 E. 71st St., New York, N. Y.....	1930
LANCASHIRE, MRS. JAMES HENRY, Manchester, N. H.....	1909
LANCELEY, WILLIAM HENRY, 23 Elmdale Ave., Ottawa, Ont., Can.....	1926
LANG, HERBERT [OTTO HENRY], Am. Mus. Nat. Hist., New York, N. Y.....	1907
LANGDON, ROY MONROE, 1538 So. College Ave., Fort Collins, Colo.....	1918

LANGELIER, DR. GUSTAVE ADOLPHE, R. R. 1, Fanbourg, St. Jean Baptiste, Que., Can.....	1923
LANGSTROTH, JAMES HEIDEL, "Bin D," Silver City, N. M.....	1924
LARGE, JOHN WARREN, Box 904, Reading, Pa.....	1929
LARGE, DR. W(ALLACE) BRUCE, 6 North Goodman St., Rochester, N. Y.....	1933
LARRABEE, PROF. AUSTIN PARK, 306 E. 15th St., Yankton, S. Dak.....	1918
LASKEY, MRS. FREDERICK CHARLES, Graybar Lane, Nashville, Tenn.....	1933
LASTRETO, CHARLES BARTHOLOMEW, 260 California St., San Francisco, Calif.....	1919
LATHAM, ROY, Orient, L. I., N. Y.....	1916
LAURENT, PHILIP, 31 Mt. Airy Ave., Philadelphia, Pa.....	1902
LAWRENCE, ALEXANDER GEORGE, City Health Dept., Winnipeg, Man., Can....	1920
LAWRENCE, ROBERT BOWNE, 411 Westmoreland Ave., Houston, Texas (1883-1900)	1923
LAWSON, RALPH, 88 Washington Sq. East, Salem, Mass.....	1917
LAZEAR, JOHN McKELVEY, 922 S. Negley Ave., Pittsburgh, Pa.....	1922
LEFEVRE, RUFUS HARRY, Box 459, Ithaca, N. Y.....	1927
LEIGHTON, ALEXANDER HAMILTON, Johns Hopkins Univ., Baltimore, Md.....	1927
LEIGHTON, MRS. ARCHIBALD OGILVIE, P. O. Box 256, Rosemont, Pa.....	1927
LEISTER, CLAUDE WILLARD, Zool. Park, 185th St. & Southern Blvd., New York, N. Y.....	1916
LEMON, FRANK EDWARD, Royal Soc. Protection of Birds, 82 Victoria St., London S. W. 1, England.....	1930
LEONARD, MISS MARY BEECHER, 30 Barnes St., Providence, R. I.....	1930
LEOPOLD, ALDO, New Soils Bldg., Univ. Wisconsin, Madison, Wis.....	1929
LERMOND, NORMAN WALLACE, R. F. D. 1, Thomaston, Maine.....	1921
LEWIS, JOHN BARZILLAI, P. O. Box 86, Amelia, Va.....	1924
LEWIS, MERRIAM GARRETSON, Langhorne Place, Salem, Va.....	1924
LEWIS, MISS NINA FISHER, Rittenhouse Plaza, 19th & Walnut Sts., Philadel- phia, Pa.....	1929
LEWY, DR. ALFRED, 2051 E. 72d Place, Chicago, Ill.....	1922
LINCOLN, ALEXANDER, JR., 59 Cadman Road, Brookline, Mass.....	1934
LINDSEY, ALTON ANTHONY, Dept. Botany, Cornell Univ., Ithaca, N. Y.....	1931
LINGEBACH, CARLETON, 1422 44th St., N. E., Kenilworth, D. C.....	1932
LINGS, GEORGE HERBERT, Barcicroft, Didsbury, Manchester, England.....	1913
LINTON, MORRIS ALBERT, 315 East Oak Ave., Moorestown, N. J.....	1928
LITTLE, LUTHER, 1400 Wayne Ave., S. Pasadena, Calif.....	1913
LIVINGSTON, PHILIP ATLEE, 630 Montgomery Ave., Wayne, Pa.....	1927
LLOYD, MRS. WILMOT, 582 Mariposa Ave., Rockcliffe Park, Ottawa, Ont., Can.	1925
LODGE, FRED STERLING, 423 S. Stone Ave., LaGrange, Ill.....	1922
LOMAX, DR. CLAUDE, Dale, Ind.....	1933
LONG, HARRY VINTON, 260 Clarendon St., Boston, Mass.....	1920
LONG, WILLIAM HENRY, JR., 1612 Morton Ave., Ann Arbor, Mich.....	1933
LONGSTREET, RUBERT JAMES, 610 Braddock Ave., Peninsula Sta., Daytona Beach, Fla.....	1923
LÖPPENTHIN, BERNT OVE HARTVIG FABRICIUS, Sondre Fasanvej 31 Itv., Copen- hagen F., Denmark.....	1928
LORD, DR. FREDERIC POMEROY, 39 College St., Hanover, N. H.....	1922
LORING, JOHN ALDEN, Owego, Tioga Co., N. Y.....	1917
LOTHROP, DR. OLIVER AMES, 101 Beacon St., Boston, Mass.....	1920
LOW, DANIEL STORY, 16 Cypress St., Marblehead, Mass.....	1930

LOW, ETHELBERT IDE, 256 Broadway, New York, N. Y.....	1907
LOW, SETH HASKELL, 50 Glendale Road, Quincy, Mass.....	1930
LOW, WARWICK JAMES, 4076 Highland Ave., Montreal, Que., Can.....	1923
LOWE, JOHN NICHOLAS, Northern State Teachers College, Marquette, Mich....	1925
LOWERY, GEORGE HINES, JR., Dept. Zool., Louisiana State University, Baton Rouge, La.....	1934
*LOWNES, ALBERT E., P. O. Box 1531, Providence, R. I.....	1924
LUMLEY, ELLSWORTH DUGANNE, Great Falls High School, Great Falls, Mont..	1933
LUNN, MISS LULU MAY, 724 Villa St., Racine, Wis.....	1920
LUNN, MISS MARGARET ALLEN, Apt. 502, The Keystone, Washington, D. C..	1919
LYON, DR. MARCUS WARD, JR., 214 La Porte Ave., South Bend, Ind.....	1922
MACCOY, CLINTON VILAS, Boston Soc. Nat. Hist., 234 Berkeley St., Boston, Mass.....	1920
MACCRACKEN, DR. WALTER H., Detroit College of Medicine, 1516 St. Antoine St., Detroit, Mich.....	1931
MACK, HORACE GORDON, Guelph, Ont., Can.....	1933
MACKAYE, JAMES, 6 College St., Hanover, N. H.....	1921
MACKWORTH-PRAED, CYRIL WINTHROP, Dalton Hill, Albury, Surrey, England.	1928
MACLAY, MARK WALTON, JR., 44 Wall St., New York, N. Y.....	1905
MACLEAN, MISS DOROTHY WILLIAMS, 176 Whiting Lane, West Hartford, Conn.	1931
MACLOGHLIN, MRS. FFORDE EDWARD, 43 Inglewood Drive, Hamilton, Ont., Can.	(1923-1925) 1926
MACLULICH, DUNCAN ALEXANDER, Royal Ontario Mus. Zool., Toronto 5, Ont., Can.....	1931
MACNUTT, ERNEST GERRARD, 4308 Montrose Ave., Montreal, Can.....	1928
MADDOCK, MISS EMELINE, The Marchwood, 5575 Wissahickon Ave., Germantown, Philadelphia, Pa.....	1897
MADDOX, JOHN RANDOLPH, Dillsburg, Pa.....	1934
MADISON, HAROLD LESTER, Director Cleveland Mus. Nat. Hist., 2717 Euclid Ave., Cleveland, Ohio.....	1912
MAGEE, MICHAEL JARDEN, 603 South St., Sault Ste. Marie, Mich.....	1919
MAHER, JOHN EDWARD, 323 Pacific Ave., Jersey City, N. J.....	1902
MAIN, JOHN SMITH, 2210 Van Hise Ave., Madison, Wis.....	1926
MALCOMSON, HERBERT THOMAS, Glenorchy, Hawthornden Rd., Knock, Belfast, N. Ireland.....	1928
MALLEY, PHILIP PATRICK, 2925 Wellman Ave., New York, N. Y.....	1934
MANIGAULT, EDWARD, Box 131, Route 1, Charleston, S. C.....	1931
MANN, DR. WILLIAM M., Nat. Zool. Park, Washington, D. C.....	1925
MANUEL, DR. CANUTO GUEVARRA, Bureau Science, Manila, P. I.....	1929
MAPLES, ASHLEY KILSHAW, 33 London Road, Spalding, England.....	1928
MARBLE, RICHARD MERRILL, Woodstock, Vt.....	1907
MARBURGER, CLIFFORD, Denver, Pa.....	1923
MARCOTTE, REV. LEON, St. Charles Seminary, Sherbrooke, Que., Can.....	1921
MARDEN, AARON, Eagle Id., South Harpswell, Maine.....	1924
MARESI, POMPEO M., 9 Reimer Rd., Scarsdale, N. Y.....	1929
MARKS, EDWARD SIDNEY, 655 Kearney Ave., Arlington, N. J.....	(1915-31) 1933
MARSHALL, ALAN JOHN, "Glen Ayr," 152 Penshurst St., Penshurst, N.S.W., Australia.....	1934
MARSH, MISS EDITH LOUISE, Peasemars Farm, Clarksburg, Ont., Can.....	1930
*MARSHALL, MRS. ELLA MARIA ORMSBY, New Salem, Mass.....	1912

MARSHALL, RAYMOND OSCAR, Box 72, Route 1, Leetonia, Ohio . . . . .	1932
MARTIN, FRED IRVING, Rt. 1, Box 58, Manchester, N. H. . . . .	1921
MARTIN, NELSON, 274 St. Clarens Ave., Toronto 4, Ont., Can. . . . .	1928
MASON, MISS ETHEL ISABEL, Blackstone Hotel, 1016 17th St., N. W., Wash- ton, D. C. . . . .	1930
MASON, GEORGE CARRINGTON, 1015 Blair Ave., Hampton, Va. . . . .	1933
MASON, ROBERT FRENCH, JR., 2415 California St., N. W., Washington, D. C. . . . .	1929
MASON, MISS ROSALIE, c/o J. S. Mason, Route 5, Thomasville, Ga. . . . .	1928
MATHEWS, FERDINAND SCHUYLER, 17 Frost St., Cambridge, Mass. . . . .	1917
MATHEWS, DR. FRANK PELLETREAU, 49 W. 52nd St., New York, N. Y. . . . .	1923
MATHEWS, ROBERT STUART, 49 West 52nd St., New York, N. Y. . . . .	1928
MATTISON, MISS MARY FRANCES, 463 North St., Anderson, S. C. . . . .	1928
MAY, RICHARD MORRIS, Centralia, Pa. . . . .	1933
MAYNARD, DR. EDWIN POST, JR., 85 Pierrepont St., Brooklyn, N. Y. . . . .	1933
MAYAUD, NOEL, 1 rue de Bordeaux, Saumur, Maine et Loire, France. . . . .	1927
MAYFIELD, DR. GEORGE RADFORD, Calhoun Hall, Nashville, Tenn. . . . .	1917
MAYNARD, DR. HERBERT ERNEST, 464 Commonwealth Ave., Boston, Mass. . . . .	1921
McADAMS, CLARK, St. Louis Post-Dispatch, St. Louis, Mo. . . . .	1931
McCABE, THOMAS TONKIN, Mus. Vert. Zool., Univ. Calif., Berkeley, Calif. . . . .	1920
McCALL, WILLIAM WHITE, 721 Millbrook Lane, Haverford, Pa. . . . .	1921
McCANN, HORACE DOLBEY, Valley Road, Paoli, Pa. . . . .	1923
McCLINTOCK, NORMAN, c/o Rutgers Univ., New Brunswick, N. J. . . . .	1900
McCOOK, HON. PHILIP JAMES, Supreme Court, New York, N. Y. . . . .	1895
McCORMICK-GOODHART, LEANDER, Langley Park, Silver Spring, Md. . . . .	1927
McCOY, HERBERT N(EWBY), 1226 Westchester Place, Los Angeles, Calif. . . . .	1930
McCREARY, OTTO, Agr. Hall, Univ. Wyoming, Laramie, Wyo. . . . .	1932
McCULLAGH, DR. ERNEST PERRY, Cleveland Clinic, 2020 E. 93rd St., Cleveland, Ohio . . . . .	1934
McDOUGALL, ERIC GRAHAM, Roy. Ontario Mus. Zool., 100 Queen's Park, Toronto, Ont., Can. . . . .	1933
McGAHEY, MISS HONORA PEARL, 193 O'Connor St., Ottawa, Can. . . . .	1926
**McILHENNY, EDWARD AVERY, Avery Island, La. . . . .	1894
McILWRAITH, THOMAS FORSYTH, 50 St. Leonard's Ave., Toronto 12, Ont., Can. . . . .	1933
McILLWAIN, DR. W(ILLIAM) BAIRD, JR., 208 So. St. Asaph St., Alexandria, Va. . . . .	1933
McINTOSH, DUNCAN HYNES, Fairhope, Ala. . . . .	1931
McKENNY, MISS MARGARET, Am. Mus. Nat. Hist., New York, N. Y. . . . .	1926
McKITTRICK, THOMAS HARRINGTON, JR., Great Surries, Ashurstwood, East Grinstead, Sussex, England . . . . .	1928
**McLAIN, ROBERT BAIRD, P. O. Box 132, Hollywood Sta., Los Angeles, Calif. . . . .	1893
McLEAN, DONALD DUDLEY, 101 E. St. James St., San Jose, Calif. . . . .	1930
McMANUS, REID, JR., Memramcook, New Brunswick, Can. . . . .	1930
McMULLEN, TURNER ELLSWORTH, 933 N. 5th St., Camden, N. J. . . . .	1920
McNEIL, DR. CHARLES ANDREW, 111½ W. 4th St., Sedalia, Mo. . . . .	1919
McNUTT, MISS DOROTHEA ROSALIE, Greensboro College, Greensboro, N. C. . . . .	1930
McQUISTON, HOWARD MEDE, 372 Jefferson Ave., Sharon, Pa. . . . .	1934
MEAD, MRS. ELDORA MEHITABLE, 51 E. 78th St., New York, N. Y. . . . .	1904
MEAD, LYLE GAGE, 709 N. Pine Ave., Austin Sta., Chicago, Ill. . . . .	1921
MEADOW, MEYER, 2172 Coney Island Ave., Brooklyn, N. Y. . . . .	1931
MEANS, ROBERT WHITMAN, 45 Vernon St., Brookline, Mass. . . . .	1932
MEDSEGER, OLIVER PERRY, 9 Columbia Ave., Arlington, N. J. . . . .	1919



MEHRINGER, ERNEST, JR., 7728 Muskegon Ave., Chicago, Ill.....	1932
MELCHER, MRS. CHARLES WOODBURY, Homosassa Springs, Fla.....	1922
MENDALL, HOWARD, Dept. Zool., University Maine, Orono, Maine.....	1934
MENGEL, GEORGE HENRY, 739 Madison Ave., Reading, Pa.....	1913
MENNINGER, DR. WILLIAM CLAIRE, 1280 Duane St., Topeka, Kans.....	1919
MEREDITH, REX, 121 Monckton Ave., Quebec, Can.....	1927
MEREDITH, CAPT. RUSSELL LUFF, Boonton, N. J.....	1933
MERRILL, MRS. CHARLES HUDSON SAYRE, 95 Hinckley Road, Milton, Mass....	1924
MERRILL, DAYTON EUGENE, 5th and Sycamore Sts., Rogers, Ark.....	1913
*MERSHON, WILLIAM BUTTS, Saginaw, Mich.....	1905
MESSER, DON VINAL, Huntington, Mass.....	1924
METCALF, JESSE, 8 W. 40th St., New York, N. Y.....	1926
METCALF, DR. ZENO PAYNE, State College Station, Raleigh, N. C.....	1913
*MEYER, MISS HELOISE, Lenox, Mass.....	1913
MEYER, WILLIAM HENRY KARLSRUH, Alpha Tau Omega House, State College, Pa.....	1933
MICHENER, HAROLD, 418 N. Hudson Ave., Pasadena, Calif.....	1926
MIDDLETON, RAYMOND JONES, Marshall St., and Whitehall Road, Norristown, Pa.....	1920
MILLER, MISS BERTHA STUART, Capstone Farm, R. 3, Kingston, N. Y.....	1915
MILLER, REV. HENRY CHARLES, 29 Sheriden Drive, Monroe, Mich.....	1931
MILLER, J(OHN) PAUL, P. O. Box 51, Mill Village, N. H.....	1932
MILLER, MISS MARY MANN, 5928 Hayes Ave., Los Angeles, Calif.....	1921
MILLS, DUDLEY HOLBROOK, Glen Cove, L. I., N. Y.....	1929
MILLS, WIER ROBSON, Pierson, Iowa.....	1920
MILNES, MISS HARRIET K., 331 Gowen Ave., Mt. Airy, Philadelphia, Pa.....	1934
MILTON, MISS HELEN DACE, Apt. 309, 2975 Chicago Blvd., Detroit, Mich....	1931
MINER, LEO DWIGHT, 2910 44th Place, N. W., Washington, D. C.....	1913
MIRICK, HENRY DUSTIN, 3637 Locust St., Philadelphia, Pa.....	1925
MITCHELL, MISS CATHARINE ADAMS, 144 Fairbank Road, Riverside, Ill.....	1911
MITCHELL, HAROLD DIES, 378 Crescent Ave., Buffalo, N. Y.....	1930
MITCHELL, HORACE HEDLEY, 1232 15th Ave., Regina, Sask., Can.....	1918
MITCHELL, MRS. OSBORNE SINDEN, 24 Wychwood Park, Toronto, 10, Ont., Can.	1928
**MITCHELL, DR. WALTON IUNGERICH, 1644 Visalia St., Berkeley, Calif.....	1893
MITCHELL, WILLIAM GORDON, Ste. Petronille, Island of Orleans, Que., Can...	1926
MITSCH, GRANT EMERSON, Brownsville, Ore.....	1926
MOFFITT, JAMES, 1879 Broadway, San Francisco, Calif.....	1926
MONK, HARRY CRAWFORD, 3108 Long Blvd., Nashville, Tenn.....	1921
MOODY, ADELBERT JOHN, c/o Aetna Life Ins. Co., Hartford, Conn.....	1918
MOORE, JOHN ALEXANDER, 60 W. 10th St., New York, N. Y.....	1930
MOORHEAD, HORACE REYNOLDS, Apt. 3 East, 1155 Park Ave., New York, N. Y.....	1926
MORE, ROBERT LEE, 1905 Wilbarger St., Vernon, Texas.....	1921
MOREHOUSE, BEAUMONT JOHN, Forestby, Branchville, Conn.....	1926
MOREY, MRS. LILLIAN DAME, Pinehurst Circle, Chevy Chase, Md.....	1924
MORGAN, BRENT MACFARLAND, 210 10th St., S. W., Washington, D. C.....	1919
*MORGAN, JOHN SAGE, 27 Circuit Road, Chestnut Hills, Mass.....	1927
MORRELL, DR. ARCH HIRAM, 210 Maine Ave., Gardiner, Maine.....	1923
MORRIS, MISS GRACE ALGER, Eagle Rock, Pa.....	1924
*MORRIS, DR. LEWIS RUTHERFORD, 1030 Fifth Ave., New York, N. Y.....	1923



MORRISON, ALASTAIR ROBIN GWYN, The Oaks, Paddockhall Road, Haywards Heath, Sussex, England .....	1934
MORRISON, ALVA, 100 Milk St., Boston, Mass. ....	1915
MORSE, ALBERT PITTS, 16 Upland Road, Wellesley, Mass. ....	1930
MORSE, FRANK EUGENE, 162 Boylston St., Boston, Mass. ....	1921
MORSE, GEORGE WASHINGTON, 318 East 9th St., Tulsa, Okla. ....	1922
MORSE, MISS MARGARETTE ELTHEA, 11432 Mayfield Rd., Cleveland, Ohio. ....	1919
MOSELEY, PROF. EDWIN LINCOLN, Bowling Green, Ohio. ....	1918
MOULTON, FRANCIS SEVERN, 155 Adams St., Milton, Mass. ....	1926
MOULTON, HERBERT FRANCIS, 132 North St., Ware, Mass. ....	1920
MOYER, JOHN WILLIAM, Field Mus. Nat. Hist., Chicago, Ill. ....	1928
MUELLER, WALTER JOSEF, 3043 North Prospect Ave., Milwaukee, Wis. ....	1934
MULLEN, ROBERT ALEXANDER, 5404 Galena Place, N. W., Washington, D. C. ....	1933
MUNN, CAPT. PHILIP WINCHESTER, Puerto Alcudia, Majorca, Balearic Isles, Spain. ....	1929
MUNTER, CAPT. WILLIAM HENRY, U. S. Coast Guard, 209 Federal Bldg., Jacksonville, Fla. ....	1927
MURIE, DR. ADOLPH, Museum Zoology, Ann Arbor, Mich. ....	1931
MURPHEY, DR. EUGENE EDMUND, 432 Telfair St., Augusta, Ga. ....	1934
MURPHY, MRS. GRACE EMELINE BARSTOW, 45 Oriole Ave., Bronxville, N. Y. ....	1919
MURPHY, MISS LOUISE, 1535 Summerhill Ave., Montreal, Can. ....	1932
MURPHY, PAUL, 10 DeForest Ave., Summit, N. J. ....	1934
MURRAY, EDGAR ANTHONY, 3431 Seminole Drive, Detroit, Mich. ....	1919
MURRAY, REV. JAMES JOSEPH, D.D., 6 White St., Lexington, Va. ....	1928
MUSSELMAN, THOMAS EDGAR, 124 S. 24th St., Quincy, Ill. ....	1922
MYERS, MRS. HARRIET WILLIAMS, 311 N. Ave. 66, Los Angeles, Calif. ....	1906
NAESER, CHARLES RUDOLPH, 550 N. Pearl St., Janesville, Wis. ....	1934
NAUMBURG, WALTER WEHLE, Box 371, New Canaan, Conn. ....	1923
*NEELY, JAMES C., 135 High St., Brookline, Mass. ....	1919
NEFF, JOHNSON ANDREW, 207 Federal Bldg., Sacramento, Calif. ....	1919
NELSON, ARNOLD LARS, Biol. Survey, Washington, D. C. ....	1931
NELSON, MISS THEODORA, 2695 Heath Ave., Bronx, New York, N. Y. ....	1927
NETTING, MORRIS GRAHAM, JR., Carnegie Museum, Pittsburgh, Pa. ....	1925
NEWBOLD, CLEMENT BIDDLE, Gate Farm, Jenkintown, Pa. ....	1929
NEWCOMB, CYRENIUS ADELBERT, JR., Rt. 3, Pontiac, Mich. ....	1920
NEWELL, MRS. H. S., Board of Trade Bldg., Duluth, Minn. ....	1926
NICHOLLS, MRS. CHARLES A., P. O. Box 88, Fairfield, Conn. ....	1933
NICHOLS, CHARLES KETCHAM, 31 Ethelbert Place, Ridgewood, N. J. ....	1931
NICHOLS, MRS. CHARLES KETCHAM, 31 Ethelbert Place, Ridgewood, N. J. ....	1933
NICHOLS, LEON NELSON, 315 E. 68th St., New York, N. Y. ....	1917
NICHOLS, RODMAN ARMITAGE, 7 S. Pine St., Salem, Mass. ....	1919
NICHOLSON, DONALD JOHN, P. O. Box 631, Orlando, Fla. ....	1925
NICOL, ARTHUR COLIN, 152 Wolseley Ave., Montreal West, Can. ....	1933
NILSEN, NILS MARIUS, 1101 3rd Ave., New York, N. Y. ....	1931
NININGER, PROF. HARVEY HARLOW, 1955 Fairfax St., Denver, Colo. ....	1920
NOKES, DR. IRWIN DANA, 1120 Rives Strong Bldg., Los Angeles, Calif. ....	1915
NOLAN, WINSTON ENGLISH, 2323 Prytania St., New Orleans, La. ....	1932
NORRIS, EDWARD, 301 W. Springfield Ave., Philadelphia, Pa. ....	1916
NORTHCUTT, CHARLES EVERETT, 7 West Boulevard, Columbia, Mo. ....	1933
NORTON, JAMES HORACE, 56 Ridge Road, Pleasant Ridge, Royal Oak, Mich. ....	1932

OASTLER, DR. FRANK RICHARD, 1192 Park Ave., New York, N. Y.....	1930
O'BRIEN, CHARLES EDWARD, Am. Mus. Nat. Hist., New York, N. Y.....	1929
O'BRIEN, JOHN ERWIN, JR., 3750 Sheridan Road, Chicago, Ill.....	1926
ODELL, THEODORE TELLAFSEN, 403 Pulteney St., Geneva, N. Y.....	1926
ODUM, EUGENE PLEASANTS, Box 792, Chapel Hill, N. C.....	1932
OEHSER, PAUL HENRY, U. S. National Museum, Washington, D. C.....	1925
OEHLENSCHLAEGER, MISS ELIZABETH AUGUSTE, 926 E. Kilbourn Ave., Milwaukee, Wis.....	1934
OGBURN, CHARLTON, JR., 44 Randolph Hall, Cambridge, Mass.....	1929
O'LEARY, ARTHUR LAWRENCE, 1033 Lawrence St., N. E., Washington, D. C.....	1926
OLIVER, MRS. JAMES CONNOR, 1576 W. Peachtree St., N. E., Atlanta, Ga.....	1928
OLSEN, HUMPHREY ADONIRAM, 172 Manchester St., Battle Creek, Mich.....	1930
OLSEN, DR. RICHARD ELLSWORTH, St. Joseph Mercy Hospital, Pontiac, Mich.....	1930
O'MEARA, DAVID, 1210 Crescent Ave., Fort Wayne, Ind.....	1933
OSBORN, PROF. HENRY FAIRFIELD, Am. Mus. Nat. Hist., New York, N. Y.....	1919
OSBORN, MISS MARY ELIZABETH, Cushing House, Smith College, Northampton, Mass.....	1929
OSBORNE, ARTHUR AUGUSTUS, 183 Lowell St., Peabody, Mass.....	1912
OSLER, GLYN FEATHERSTON, 360 St. James St., Montreal, P. Q., Can.....	1934
OSLER, HENRY S., 1 Rosedale Road, Toronto, Ont., Can.....	1920
OSTROM, FRANK HILTON, 21 Prince Rupert Apts., 585 O'Connor St., Ottawa, Ont., Can.....	1928
OVER, WILLIAM HENRY, 125 Harvard St., N., Vermilion, S. Dak.....	1921
OVERING, ROBERT, Landover, Md.....	1929
*OWEN, MISS JULIETTE AMELIA, 306 N. 9th St., St. Joseph, Mo.....	1897
OWENS, CHARLES MELVIN, Monticello, Ark.....	1934
OWRE, OSCAR, JR., 2625 Newton Ave. So., Minneapolis, Minn.....	1934
*PACK, ARTHUR NEWTON, 11 Morven St., Princeton, N. J.....	1929
PACKARD, WINTHROP, 1442 Washington St., Canton, Mass.....	1917
PAFF, WILLIAM ALFRED, 916 Paxinosa Ave., Easton, Pa.....	1927
**PAINE, AUGUSTUS GIBSON, JR., 31 E. 69th St., New York, N. Y.....	1886
PALMER, C(LARENCE) MORTIMER, JR., Investment Bldg., 15th & K Sts., N. W., Washington, D. C.....	1931
*PALMER, MISS ELIZABETH DAY, 1741 S. Harvard Blvd., Los Angeles, Calif.....	1918
PALMER, RALPH SIMON, Route 4, Box 11, Brunswick, Maine.....	1932
PALMER, DR. SAMUEL COPELAND, Swarthmore College, Swarthmore, Pa.....	1899
PALMER, MRS. THEODORE SHERMAN, 1939 Biltmore St., N. W., Washington, D. C.....	1918
PANGBURN, CLIFFORD HAYES, 559 Forest Ave., Highland Park, Ill.....	1907
PAQUETTE, REV. JOSEPH ANDRÉ, College St. Joseph, Berthierville, Que., Can.....	1932
*PARKER, EDWARD LUDLOW, Nashawtue Road, Concord, Mass.....	1916
PARKER, HARRY CLARENCE, Mus. Nat. Hist., 12 State St., Worcester, Mass.....	1927
PARKER, HERBERT, South Lancaster, Mass.....	1920
PARKER, SAMUEL JACKSON, 27 E. Marshall St., West Chester, Pa.....	1932
PARMELEY, MRS. RETTA CHRISTIE, 85 Beechmont Drive, New Rochelle, N. Y.....	1931
PARRY, EDWARD HICKS, Box 84, Wyncote, Pa.....	1929
PATCH, DR. EDITH MARION, College Road, Orono, Maine.....	1921
PATTEN, DR. STEPHEN KERR, 141 Milk St., Boston, Mass.....	1920
PATTERSON, JOHN ELLIOT, 341 Giannini Hall, Univ. Calif., Berkeley, Calif.....	1929
PAUL, LUCIUS H., 424 Carter St., Rochester, N. Y.....	1908

PAUL, DR. ROBERT DORLAND, 1358 E. 47th St., Chicago, Ill.	1927
PEABODY, REV. PUTNAM BURTON, 2011 Park Ave., Topeka, Kans.	1903
PEAKE, ARTHUR LIONEL, Nanaimo, B. C., Can.	1927
PEARSALL, GORDON SAWYER, Field Museum, Chicago, Ill.	1931
PEARSE, SPENCER, Ravenscrag, Sask., Can.	1926
PEARSE, THEED, P. O. Box 158, Courtenay, Vancouver Id., B. C., Can.	1926
PEASE, MISS FLORENCE MABEL, Box 265, Conway, Mass.	1922
PEASLEY, MRS. HAROLD RAYMOND, 1807 6th Ave., Des Moines, Iowa.	1934
PEET, DR. MAX MINOR, 2030 Hill St., Ann Arbor, Mich.	1933
PELL, STUYVESANT MORRIS, Pleasant Valley Bird Sanctuary, Lenox, Mass.	1932
PELLEW, MISS MARION JAY, 2204 Barnwell Ave., Aiken, S. C.	1919
PEMBERTON, JOHN ROY, 3031 No. Lake Ave., Altadena, Calif.	1918
PENNOCK, DR. WINTHROP, 713 East Genesee St., Syracuse, N. Y.	1931
PEPPER, DR. WILLIAM, Melrose Park, Philadelphia, Pa.	1911
PEPPER, WILLIAM, JR., 110 Glenview Ave., Wyncote, Pa.	1930
PERNE, KEEBLE BARNUM, 242 Islington Rd., Auburndale, Mass.	1917
*PERKINS, DR. ANNE ELIZABETH, Box 414, North Berwick, Maine.	1917
PERKINS, DR. EDWARD HENRY, Box 52, Colby College, Waterville, Maine.	1920
PERKINS, SAMUEL ELLIOTT, 3d, 709 Inland Bldg., Indianapolis, Ind.	1923
PERRY, EDGAR LE ROY, State Game and Fish Warden, Santa Fe, N. M.	1928
PERRY, GEORGE LEWIS, 68 Thurston St., Winter Hill, Somerville, Mass.	1923
PERRY, JOHN ELMER, 956 W. 28th St., Erie, Pa.	1924
PETERKIN, FREDERICK PEMBROKE, Kendal, St. John, Barbados, B. W. I.	1933
PETERS, ALBERT S., Donnybrook, N. Dak.	1908
PETERS, HAROLD SEYMOUR, Bur. Entomology, Dept. Agr., Washington, D. C.	1924
PETERSON, ALFRED, Box 211, Pipestone, Minn.	1920
PETERSON, MRS. CHARLES EMIL, 621 Hillcrest, Madison, Minn.	1932
PETERSON, NELS THEODORE, 80 Oaklawn Ave., Battle Creek, Mich.	1931
PETERSON, ROGER TORY, Nat. Assn. Audubon Soc., 1775 Broadway, New York.	1929
PETINGILL, DR. OLIN SEWALL, JR., Maple St., Middleton, Mass.	1930
PEYTON, LAWRENCE GORHAM, R. F. D. 2, Fillmore, Ventura Co., Calif.	1924
PFEIFFER, EGBERT WHEELER, 4600 Palisade Ave., New York, N. Y.	1930
PHELPS, FRANK MILLS, 312 5th St., Elyria, Ohio.	1912
PHELPS, J. H., 1319 24th St., Ogden, Utah.	1933
PHELPS, MRS. JOHN WOLCOTT, Box 158, Northfield, Mass.	1899
PHILIPP, FREDERICK BERNARD, West Rd. & Hobart Gap Rd., Short Hills, N. J.	1931
*PHILIPP, PHILIP BARNARD, 220 Broadway, New York, N. Y.	1907
PHILLIPS, ALLAN ROBERT, P. O. Box 357, Scarsdale, N. Y.	1932
**PHILLIPS, PROF. ALEXANDER HAMILTON, 54 Hodge Road, Princeton, N. J.	1891
PHILLIPS, CHARLES LINCOLN, 5 West Weir St., Taunton, Mass.	1912
*PHILLIPS, JOHN MACFARLANE, 2227 Jane St., Pittsburgh, Pa.	1920
PHINIZY, DR. IRVING, Augusta, Ga.	1933
PICKENS, ANDREW LEE, 208 E. Washington Rd., Greenville, S. C.	1925
PICKWELL, GAYLE BENJAMIN, Natural Science Dept., State Teachers Coll., San Jose, Calif.	1924
PIERCE, FRED JOHN, Winthrop, Iowa.	(1922) 1930
PIERCE, WRIGHT McEWEN, Box 343, Claremont, Calif.	1918
PIGGOT, JOHN WHITMAN, Bridgetown, N. S., Can.	1927
*PIKE, EUGENE ROCKWELL, 2430 Lake View Ave., Chicago, Ill.	1926
*PINCHOT, HON. GIFFORD, Milford, Pike Co., Pa.	1910

PIRNIE, DR. MILES DAVID, Kellogg Bird Sanctuary, R. F. D. 1, Augusta, Mich.....	1919
PLATH, KARL, 2847 Giddings St., Chicago, Ill.....	1925
PLATT, CHARLES, Morris Road, Ambler, Pa.....	1930
PLATT, HON. EDMUND, 146 Hampton Rd., Garden City, L. I., N. Y.....	1917
POE, MISS MARGARETTA, Earl Court, St. Paul & Preston Sts., Baltimore, Md.....	1899
POMEROY, FRED ELMER, Dept. Biology, Bates College, Lewiston, Maine.....	1920
PÖNITZ, STUDIENRAT HANS, Frankfurterstr. 2, Leipzig, Germany.....	1929
POOLE, EARL LINCOLN, Public Museum, Reading, Pa.....	1916
POOLE, FRAZER GLENDON, Federalsburg, Maryland.....	1934
POOR, HUSTACE HUBBARD, 112 Park Ave., Yonkers, N. Y.....	1934
PORSILD, A. E., Dominion Lands Branch, Dept. Interior, Ottawa, Ont., Can.....	1934
**PORTER, LOUIS HOPKINS, Noroton Hill, Stamford, Conn.....	1893
PORTER, SYDNEY, The White Gates, Stenson Road, Derby, England.....	1930
PORTER, WILLARD BROWN, 5 Lee St., Salem, Mass.....	1922
POTIER, ISRAEL J., Lower Wedgeport, Yarmouth Co., Nova Scotia, Can.....	1933
POTTER, MISS JESSICA AVICE, 1118 Santee St., Los Angeles, Calif.....	1924
POTTER, JULIAN KENT, 437 Park Ave., Collingswood, N. J.....	1912
POTTER, LAURENCE BEDFORD, Gower Ranch, East End, Sask., Can.....	1919
POTTER, LOUIS HENRY, R. F. D. 2, West Rutland, Vt.....	1922
POTTS, FREDERICK ANDREW, Ensenada, Puerto Rico.....	1922
POUGH, RICHARD HOOPER, 1600 Sansom St., Philadelphia, Pa.....	1922
POWELL, MISS ISABEL MOBLEY, 29 Capisic St., Portland, Maine.....	1931
**PRAEGER, WILLIAM EMILIUS, Kalamazoo College, Kalamazoo, Mich.....	1892
PRATT, DELBERT RANDALL, McKinley High School, Canton, Ohio.....	1932
PRENTISS, REV. WILLIAM CARLOS, 39 Gilbert St., North Brookfield, Mass.....	1921
PRESMOTT, MRS. SAMUEL CATE, 249 Tappan St., Brookline, Mass.....	1922
PRESNALL, CLIFFORD C., Zion Nat. Park, Utah.....	1933
PRICE, CHARLES EVANS, JR., 510 Ogden Ave., Swarthmore, Pa.....	1934
PRICE, JOHN BASYL, 532 Alvarado St., Stanford University, Calif.....	1931
PRICE, DR. LIGON, Dunmore, W. Va.....	1913
PRIEST, CAPT. CECIL DAMER, Wedza, Marandellas, S. Rhodesia, S. Africa.....	1927
PRILL, DR. ALBERT G., Scio, Oregon.....	1921
PRIMLEY, WALTER S., 125 Mary Street, Hubbard Woods, Ill.....	1934
*PROCTER, MRS. LILLIAN SANFORD, New Ashford, Lanesboro P. O., Mass.....	1928
PROCTOR, GEORGE NEWTON, 250 Beacon St., Boston, Mass.....	1919
*PROCTOR, WILLIAM, 430 Park Ave., New York, N. Y.....	1928
PROSSER, DR. CLARE CUMMING, 4028 Upton Ave., So., Minneapolis, Minn.....	1934
PUMYEA, NELSON DEWITT, Mount Holly, N. J.....	1928
PURCELL, MISS ETHEL, 54 Briarcliffe Circle, N. E., Atlanta, Ga.....	1934
PURDIE, MISS EVELYN, 49 Ware Hall, 383 Harvard St., Cambridge, Mass.....	1921
PURDY, WILLIAM BROWN, Box 114, Milford, Oakland Co., Mich.....	1921
QUARLES, EMMET AUGUSTUS, 139 E. 7th St., Plainfield, N. J.....	1918
QUATTLEBAUM, REV. WILLIAM DANIEL, 1925 Paloma St., Pasadena, Calif.....	1924
QUILLIN, ROY WILLIAM, 422 W. King's Highway, San Antonio, Texas.....	1920
QUINDRY, LELAND ARKELL, 7626 Greenview Ave. N., Rogers Park Sta., Chicago, Ill.....	1929
RACEY, KENNETH, 3262 West First Ave., Vancouver, B. C., Can.....	1921
RALFE, PILCHER GEORGE, Castletown, Isle of Man, England.....	1928
RAND, AUSTIN LOOMER, Am. Mus. Nat. Hist., New York, N. Y..... (1927-30)	1934



RANDALL, ROBERT NEAL, Georgetown, Colo.	1934
RANEY, EDWARD C., 1427 Neshannock Blvd., New Castle, Pa.	1933
RANLETT, MRS. LOUIS FELIX, 1 Bellevue Hill Road, West Roxbury, Mass.	1931
RANSOM, WEBSTER HAMILTON, 708 W. 20th Ave., Spokane, Wash.	1927
RAPP, FREDERICK WILLIAM, 125 E. Prairie St., Vicksburg, Mich.	1922
RAYMOND, OLNEY MARTIN, 25 Pierrepont St., Brooklyn, N. Y.	1930
RAZ, GEORGE FRANCIS, Box 83, Union Pier, Mich.	1931
REAGH, DR. ARTHUR LINCOLN, 39 Maple St., West Roxbury, Mass.	1896
REATH, BENJAMIN BRANNAN, 2d, Merion Sta., Montgomery Co., Pa.	1928
REDD, LEONARD, 2413 Mason St., Flint, Mich.	1931
REDWINE, DAN ALLEN, Spiro, Okla.	1933
REED, MRS. CARLOS ISAAC, 269 E. Division St., Villa Park, Ill.	1920
REED, MRS. CHARLES KELLER, 11 State St., Worcester, Mass.	1925
REED, MISS CLARA EVERETT, Brookfield, Mass.	1919
REESE, MRS. ROBERT MILLER, 517 Cameron St., Alexandria, Va.	1920
REGAR, GEORGE BERTRAM, Copewell House, Rydal, Pa.	1923
REGAR, HOWARD SEVERN, Summit Drive, Anniston, Ala.	1916
REHN, JAMES ABRAHAM GARFIELD, Acad. Nat. Sci., Philadelphia, Pa.	1901
REID, MRS. BRUCE, Gulf Refinery, Port Arthur, Texas.	1918
REID, RUSSELL, 811 12th St., Bismarck, N. Dak.	1919
REIS, REV. JACOB ANTHONY, JR., Edea (Sakbayeme), French Cameroun, West Africa.	1921
RENOLL, KENNETH L., 306 West Beaver Ave., State College, Pa.	1933
REUSS, ALFRED HENRY, JR., 12910 S. Mozart St., Blue Island, Ill.	1933
RHOADS, CHARLES JAMES, Bryn Mawr, Pa.	1895
**RHOADS, SAMUEL NICHOLSON, 81 Haddon Ave., Haddonfield, N. J.	1885
RICE, JAMES HENRY, JR., Brick House Plantation, Wiggins, S. C.	1910
RICE, WARD JENNINGS, 5250 N. Pennsylvania St., Indianapolis, Ind.	1913
RICH, MARCUS CHARLES, 92 Morningside Ave., New York, N. Y.	1931
RICH, MISS NELLIE VANDERVOORT, 295 Ridge Rd., R. F. D. 3, Wethersfield, Conn.	1923
RICHARDS, MISS HARRIET ELIZA, 36 Longwood Ave., Brookline, Mass.	1900
RICHARDS, MISS RUTH, Clifton Sta., Fairfax Co., Va.	1921
RICHARDS, TUDOR, Joy's Lane, Groton, Mass.	1934
RICHARDSON, CARL, Prospect, Ore.	1929
RICHARDSON, GEORGE HUBERT, 182 Rusholme Road, Toronto, Ont., Can.	1934
RICHARDSON, WILLIAM DERRICK, 4215 Prairie Ave., Chicago, Ill.	1917
*RICHARDSON, MRS. WILLIAM DERRICK, 4215 Prairie Ave., Chicago, Ill.	1925
RICHARDSON, DR. WYMAN, 229 Dudley Road, Newton Centre, Mass.	1920
**RIDGWAY, JOHN LIVZEY, 635 No. Pacific Ave., Glendale, Calif.	1890
**RIKER, CLARENCE BAYLEY, 432 Scotland Road, South Orange, N. J.	1885
RIPLEY, R. WOLCOTT, 901 Lexington Ave., New York, N. Y.	1928
RITTER, WILLIAM CLARKE, 214 Thurston Ave., Ithaca, N. Y.	1929
RITTER, DR. WILLIAM EMERSON, Univ. California, Berkeley, Calif.	1929
*ROADS, MISS KATIE MYRA, 463 Vine St., Hillsboro, Ohio.	1929
ROBB, WALLACE HAVELOCK, Abbey Dawn, Rt. 1, Kingston, Ont., Can.	1921
ROBBINS, CHANDLER, JR., Boston Post Road, Weston, Mass.	1934
ROBBINS, MISS MARY LOUISE, 1417 Belmont St. N. W., Washington, D. C.	1933
ROBERTS, HOWARD RADCLYFFE, Villa Nova, Pa.	1924
ROBERTS, WILLIAM ELY, 207 McKinley Ave., Lansdowne, Pa.	1902



ROBERTSON, HOWARD, 157 S. Wilton Drive, Los Angeles, Calif.	1911
ROBERTSON, JOHN Mc BRAIR, Box 121, Buena Park, Orange Co., Calif.	1920
ROBINSON, ANTHONY WAYNE, 780 College Ave., Haverford, Pa.	1903
ROBINSON, HERBERT WILLIAM, 37 West Road, Lancaster, England	1928
ROBINSON, MISS RACHEL GORGAS, 780 College Ave., Haverford, Pa.	1928
ROGERS, BERNARD FOWLER, JR., Rm. 1637, Box 4, 175 W. Jackson St., Chicago, Ill.	1930
ROGERS, CYRIL HAROLD, 4 Mill Road, Cambridge, Eng.	1931
ROGERS, MISS MABEL FLORENCE, 11 Fourth Ave., Ottawa, Ont., Can.	1921
ROGERS, MISS MABEL TITSWORTH, Milledgeville, Ga.	1934
ROGERS, REV. WALLACE, Oxford, Ga.	1921
ROGERS, MRS. WALTER E., 911 E. North St., Appleton, Wis.	1932
ROLAND, CONRAD KESSLER, 4226 Parkside Ave., Philadelphia, Pa.	1917
ROOSEVELT, HON. FRANKLIN DELANO, The White House, Washington, D. C.	1896
ROSE, FRANK HUBERT, Missoula, Mont.	1927
ROSE, GEORGE CHILDS, 178 Second St., Mineola, N. Y.	1920
ROSENE, WALTER, JR., Ogden, Iowa	1934
ROSENE, WALTER MELVIN, P. O. Box 22, Ogden, Iowa	1928
ROSIER, EUGENE, Petit Saconnex, Geneva, Switzerland	1927
ROSS, GEORGE HERBERT, 23 West St., Rutland, Vt.	1904
ROSS, HOLLIS TREVOR, 32 South 2nd St., Lewisburg, Pa.	1931
ROSS, LAURENCE STRAUB, 510 E. Second St., Moorestown, N. J.	1925
ROSS, DR. LUCRETIVS HENRY, 507 Main St., Bennington, Vt.	1912
ROSS, MISS MARJORIE RUTH, R. R. 5, Fairmont, W. Va.	1928
ROSS, REUBEN JAMES, 63 Wall St., New York, N. Y.	1922
ROSS, ROLAND CASE, 1820 Bushnell Ave., South Pasadena, Calif.	1925
ROSSIGNOL, GILBERT RICE, 1321 East 33d St., Savannah, Ga.	1928
ROWLEY, JOHN STUART, 1821 So. Monterey St., Alhambra, Calif.	1930
ROYALL, JORDAN BROOKS, Tallahassee, Fla.	1928
RUBEY, WILLIAM WALDEN, U. S. Geological Survey, Washington, D. C.	1934
RUBY, GEORGE DALLAS, 520 Clarendon St., Syracuse, N. Y.	1928
RUGG, HAROLD GODDARD, Dartmouth College, Hanover, N. H.	1919
RUPPERT, FRANK CULVER, 2032 4th Ave., Los Angeles, Calif.	1927
RUSSELL, HENRY NORRIS, JR., 79 Alexander St., Princeton, N. J.	1931
RUSSELL, DR. WHITFIELD LIGGETT, Box 22, Rhome, Texas	1934
RUST, HENRY JUDSON, Coeur d'Alene, Idaho	1918
RUTTER, RUSSELL JAMES, c/o Brodie Club, 100 Queen's Park, Toronto, Ont., Can.	1928
**SAGE, HENRY MANNING, Menands Road, Albany, N. Y.	1885
SAGE, MRS. MARY SEARL, Nat. Assn. Audubon Societies, 1775 Broadway, New York, N. Y.	1919
SALLEE, ROY MERRIDITH, 131 No. Normal St., Macomb, Ill.	1931
SALOMONSEN, FINN, Slotsholmsgade 16, Copenhagen, Denmark	1927
SAMPSON, WALTER BEHRNARD, 1005 N. San Joaquin St., Stockton, Calif.	1922
SAMPSON, WILLIAM FRANCIS, 174 St. James Drive, Piedmont, Alameda Co., Calif.	1929
SANBORN, COLIN CAMPBELL, 1612 Pleasant St., Highland Park, Ill.	1911
*SANFORD, DR. LEONARD CUTLER, 245 Whitney Ave., New Haven, Conn.	1919
SANSOM, NORMAN BETHUNE, 110 Muskrat St., Banff, Alta., Can.	1928
SANTENS, REMI HENRI, Carnegie Museum, Pittsburgh, Pa.	1918

SARGENT, WILLIAM DUNLAP, Dept. Entomology, Cornell Univ., Ithaca, N. Y.	1930
SASS, HERBERT RAVENEL, 23 Legare St., Charleston, S. C.	1923
SATTERTHWAIT, MRS. ALFRED FELLEBERG, 118 Waverly Place, Webster Groves, Mo.	1920
SAUNDERS, FREDERICK ALBERT, 8 Berkeley Place, Cambridge 38, Mass.	1923
SAUNDERS, GEORGE BRADFORD, Dept. Conservation, Game Division, Lansing, Mich.	1925
SAVAGE, HENRY LITTLETON 622 E. Gravers Lane, Chestnut Hill, Philadelphia, Pa.	1926
SAVARY, WALTER BURGESS, Wareham, Mass.	1922
SAVIN, WILLIAM MORGAN, Annandale, Hunterdon Co., N. J.	1921
SAWYER, EDMUND JOSEPH, Cranbrook School, Bloomfield Hills, Mich.	1930
SAXTON, REFOR NICHOLS, 2141 30th St., N. E. Washington, D. C.	1933
SCHAEFER, HENRY ROBERT, Sargent Road, R. F. D. 2, Hyattsville, Md.	1933
SCHAEFER, OSCAR FREDERICK, 724 Woodbine St., Rochester, N. Y.	1916
SCHAFER, JOHN JACOB, R. R. 2, Port Byron, Ill.	1918
SCHALDACH, WILLIAM JOSEPH, Route 12, Westport, Conn.	1931
SCHANTZ, ORPHEUS MOYER, 3219 Maple Ave., Berwyn, Ill.	1919
SCHEAR, PROF. EDWARD WALDO EMERSON, 107 W. Park St., Westerville, Ohio.	1922
SCHINDEL, ROBERT RANDOLPH, 145 Walnut St., Sunbury, Pa.	1932
SCHMID, EDWARD SIDNEY, 712 12th St., N. W., Washington, D. C.	1931
SCHMIDT, MISS CLAUDIA, 39 Ely Ave., W. Springfield, Mass.	1930
SCHMIDT, EUGENE WILLIAM, 494 Church St., New Britain, Conn.	1927
SCHMIDT, FRANKLIN, Room 2, Soils Bldg., Madison, Wis.	1934
SCHOEDINGER, GEORGE RICHARD, JR., 78 Auburn Ave., Columbus, Ohio.	1926
SCHONNEGEL, JULIAN ELIOT, 92 Morningside Ave. E., New York, N. Y.	1918
SCHORGER, ARLE WILLIAM, 168 N. Prospect Ave., Madison, Wis.	1913
SCHRENCK, DR. HERMANN VON, Tower Grove and Flad Aves., St. Louis, Mo.	1919
SCHROEDER, MRS. ADELE PARROTT, 219 E. Washington St., Bluffton, Ind.	1920
SCHROEDER, MRS. HENRY WILLIAM, 464 Heights Road, Ridgewood, N. J.	1934
SCHULTZ, MISS HELEN HOUSER, Box 105, S. T. C., Fredericksburg, Va.	1933
SCHWANDT, MISS IRMA M., 1157 Kavanaugh Place, Wauwatosa, Wis.	1934
SCHWARZ, HERBERT FERLANDO, Am. Mus. Nat. Hist., New York, N. Y.	1925
SCOTT, CHARLES HENRY, JR., 1100 Provident Trust Bldg., Philadelphia, Pa.	1926
SCOTT, F(REDERICK) CLEMENT, 1035 Hillside Ave., Plainfield, N. J.	1931
SCOTT, DR. JOHN WILLIAM, University Wyoming, Laramie, Wyo.	1934
SCOVILLE, SAMUEL, JR., 1307 Penn Bldg., Philadelphia, Pa.	1916
SEARS, J(OSEPH) ALDEN, Kenilworth, Ill.	1934
SEPTON, JOSEPH WELLER, JR., 638 F St., San Diego, Calif.	1922
SEIB, DR. GEORGE ARTHUR, 2323 Lafayette Ave., St. Louis, Mo.	1931
SEIBERT, HENRI CLERET, 414 Northway, Baltimore, Md.	1934
SEIPLE, STANLEY JULIUS, 293 Clinton St., Greenville, Pa.	1927
*SEMPLE, JOHN BONNER, Sewickley, Pa.	1924
*SERPELL, GOLDSBOROUGH, Seaboard Nat. Bank, Norfolk, Va.	1926
SERRILL, WILLIAM JONES, Haverford, Pa.	1916
SHADLE, ALBERT RAY, Biol. Dept., Univ. Buffalo, Buffalo, N. Y.	1928
SHANNON, WAYLAND EVANS, 1260 Talbot St., Jacksonville, Fla.	1929
SHARP, BARTON LAMAR, 201 N. Broad St., Lititz, Pa.	1931
*SHAW, HENRY SOUTHWORTH, 136 High St., Exeter, N. H.	1916
SHAW, TSEN HWANG, Fan Memorial Inst. of Biology, Peiping, China.	1922

SHAW, DR. WILLIAM THOMAS, 1002 Cambridge Ave., Fresno, Calif.....	1908
SHEARER, DR. AMON ROBERT, Mont Belvieu, Chambers Co., Texas.....	1905
SHEFFLER, WILLIAM JAMES, 4731 Angeles Vista Blvd., Los Angeles, Calif.....	1928
SHELDON, MISS CAROLYN, Mus. Zool., Univ. Mich., Ann Arbor, Mich.....	1930
SHELDON, HENRY ERNEST, 21 Norwood Ave., Norwalk, Ohio.....	1926
SHELFORD, DR. VICTOR ERNEST, Expt. Zool. Lab., Champaign, Ill.....	1931
SHELLEY, LEWIS ORMAN, P. O. Box 22, East Westmoreland, N. H.....	1925
SHEPPARD, ROY WATSON, 1805 Moulard Ave., Niagara Falls, Ont., Can.....	1928
SHERRILL, WILLIAM ENOS, Haskell, Texas.....	1922
SHERWOOD, JOHN WILLITS, P. O. Box 264, Salinas, Calif.....	1929
SHERWOOD, ROBERT COVELL, 38 Vassar St., Springfield, Mass.....	1921
SIELDS, THOMAS EDGAR, 150 18th Street, Warwood, Wheeling, W. Va.....	1934
SHIPMAN, CHARLES MELVILLE, 114 Ridge Road, Willoughby, Ohio.....	1925
SHOEMAKER, CLARENCE RAYMOND, 3116 P St., Washington, D. C.....	1910
SHOEMAKER, HENRY WHARTON, Room 409, 71 Broadway, New York, N. Y.....	1912
SHOFFNER, CHARLES PENNYPACKER, Room 25, 725 Walnut St., Philadelphia, Pa.....	1915
SHORTT, TERENCE MICHAEL, Royal Ont. Mus., Toronto 5, Ont., Can.....	1931
SHREVE, BENJAMIN, 29 Chestnut St., Salem, Mass.....	1933
SHUFELDT, PERCY WELLES, Santa Fe, N. Mex.....	1931
SHULL, MISS ELIZABETH B., 167 Johnson Hall, 411 W. 116th St., New York, N. Y.....	1933
SILLIMAN, OSCAR PERRY, c/o Mitchell-Silliman Co., Salinas, Calif.....	1915
SIMONS, EDWARD ALEXANDER, 4 Lamboll St., Charleston, S. C.....	1928
SIMONS, DR. JOSEPH, 5555 Everett Ave., Chicago, Ill.....	1929
SKAGGS, MERIT BRYAN, 15973 Euclid Ave., East Cleveland, Ohio.....	1934
SKILLEN, DR. DONALD RALPH, 317 S. 46th St., Philadelphia, Pa.....	1929
SKINNER, MILTON PHILO, 1316 Harding St., Long Beach, Calif.....	1916
SKUTCH, ALEXANDER FRANK, 3509 Clark's Lane, Baltimore, Md.....	1930
SLADEN, MAJOR ALEXANDER GEORGE LAMBERT, Kingswood House, The Lee, Gt. Missenden, Bucks, England.....	1927
SLAWSON, DR. EDWARD DOUGLASS, 708 N. Sheridan St., Bay City, Mich.....	1921
SLOCUM, JOHN JERMAIN, 22 Lamboll St., Charleston, S. C.....	1931
SLOCUM, HARRY SPENCER, 4 Whitehorn Lane, Bluefield, W. Va.....	1928
SMACH, HENRY HARRY, 1300 So. Euclid Ave., Berwyn, Ill.....	1934
SMALL, COL. WILLIAM MELVILLE, 601 Upland Drive, San Francisco, Calif.....	1924
SMILEY, ALBERT KEITH, JR., Mohonk Lake, Ulster Co., N. Y.....	1928
SMILEY, DANIEL, JR., Mohonk Lake, Ulster Co., N. Y.....	1928
SMITH, MISS ALTA, 2057 7th St., Cuyahoga Falls, Ohio.....	1934
SMITH, AUSTIN PAUL, Zarzero, Costa Rica.....	1911
SMITH, CHARLES PIPER, 976 Riverside Ave., San Jose, Calif.....	1929
SMITH, EARL R., P. O. Box 641, New Orleans, La.....	1924
SMITH, MISS EDITH JOSEPHINE, 1301 Mass. Ave., Apt. 110, Washington, D. C.....	1934
SMITH, MRS. ELIZABETH BURNELL, 1029 No. Stanley Ave., Los Angeles, Calif.....	1923
SMITH, MISS EMILY, Route 1, Box 93, Los Gatos, Calif.....	1929
SMITH, PROF. FRANK, 79 Fayette St., Hillsdale, Mich.....	1909
SMITH, FRANK RUSH, Fredericktown, Pa.....	1926
SMITH, HERBERT ALLYN, 3219 Bellefontaine Ave., Kansas City, Mo.....	1928
SMITH, MRS. HERBERT WATSON, 86 S. Bay Ave., Islip, Suffolk Co., N. Y.....	1925
**SMITH, HORACE GARDNER, 2918 Lafayette St., Denver, Colo.....	1888

**SMITH, DR. HUGH McCORMICK, 1209 M St., N. W., Washington, D. C.	1886
SMITH, LEWIS MACCUEEN, 8018 Winston Rd., Chestnut Hill, Philadelphia, Pa.	1927
SMITH, LORIS PHILBRICK, 2017 108th Ave., Oakland, Calif.	1931
SMITH, LESTER WHEADON, Eaglebrook School, Deerfield, Mass.	1916
SMITH, LUTHER ELY, 1554 Telephone Bldg., St. Louis, Mo.	1928
SMITH, NAPIER, c/o Credite Balear, Palma de Mallorca, Balearic Ids., Spain.	1915
SMITH, REV. O(NNIE) WARREN, 120 Church St., Oconomowoc, Wis.	1924
SMITH, ROLAND W., P. O. Box 362, Wolfville, Nova Scotia, Can.	1932
SMITH, ROWLAND ARTHUR, 211 Dunn Ave., Toronto, Ont., Can.	1934
SMITH, ROY HARMON, 183 N. Prospect St., Kent, Ohio	1922
SMITH, MRS. WALLIS CRAIG, 525 N. Mich. Ave., Saginaw, W. S., Mich.	1916
SMITH, WENDELL PHILLIPS, Wells River, Vt.	1919
SMOOKER, GEORGE DOUGLAS, Mt. Hope, St. Joseph, Trinidad, B. W. I.	1926
**SMYTH, ELLISON ADGER, JR., Rt. 2, Box 166, Salem, Va.	1892
SMYTH, J(AMES) ADGER, Salem, Va.	1933
SMYTH, DR. THOMAS, State Teachers College, Indiana, Pa.	1921
SNOW, MISS GRACE MARION, 39 Forest St., Winchester, Mass.	1922
SNYDER, WILL EDWIN, 309 DeClarke St., Beaver Dam, Wis.	1895
SOMMER, JOSEPH B., 907 Knoxville St., Peoria, Ill.	1934
SOUTHWICK, MRS. MARY KATHRYN, Kimball Bird Sanctuary, R. F. D., Bradford, R. I.	1930
SPAULDING, MISS NINA GERTRUDE, Jaffrey, N. H.	1922
SPELMAN, HENRY MUNSON, 48 Brewster St., Cambridge, Mass.	(1883-99) 1911
SPERRY, CHARLES CARLISLE, 1455 S. Franklin St., Denver, Colo.	1920
SPIKER, CHARLES JOLLEY, Branchport, N. Y.	1933
*SPINGARN, EDWARD DAVID WOODBERRY, Amenias, N. Y.	1924
SPOFFORD, WALTER RICHARDSON 2D, Highland Road, Berlin, Mass.	1927
SPROT, GEORGE DOVETON, R. M. D. Cobble Hill, Vancouver Island, B. C., Can.	1923
SPRUANCE, WILLIAM CORBIT, 2507 W. 17th St., Wilmington, Del.	1923
SSEREBROWSKY, DR. P., Zool. Museum, Acad. Science, Leningrad, U. S. S. R.	1930
STANFORD, DR. JOSEPH SEDLEY, 445 N. 7th St. E., Logan, Utah	1929
STANLEY, DR. ARTHUR CAMP, The Farragut, Washington, D. C.	1925
STARRETT, WILLIAM CHARLES, 303 Maryland Ave., Peoria, Ill.	1932
STEAGALL, DR. MARY MINERVA, So. Ill. State Teachers College, Carbondale, Ill.	1933
STEBBINS, MISS FANNIE ADELL, 31 Ely Ave., West Springfield, Mass.	1922
STETSON, SERENO, 511 W. 113th St., New York, N. Y.	1923
STEVENS, ROSS OLIVER, Soil Erosion Service, High Point, N. C.	1932
STEVENSON, HENRY BERNARD, Waynesboro, Ga.	1930
STEVENSON, HENRY M., 815 13th St. S. W., Birmingham, Ala.	1933
STEVENSON, JAMES OSBORNE, 410½ So. Catalina St., Los Angeles, Calif.	1926
STEWART, MISS LAURIE MARGUERITE, Hunting Creek, N. C.	1934
STEWART, PAUL ALVA, R. D. 1, Leetonia, Ohio	1928
STICKNEY, GARDNER PERRY, 864 Summit Ave., Milwaukee, Wis.	1923
STILLWELL, JERRY E., 2873 West 12th St., Dallas, Texas	1934
STOCKMANN, STEN, Skeppanegatan 6, Helsingfors, Finland	1930
STONE, HARRY HERBERT, JR., Sturbridge, Mass.	1919
STONE, ROBERT GREGG, 575 Boylston St., Brookline, Mass.	1922
STONE, MRS. WITMER, 452 Church Lane, Germantown, Philadelphia, Pa.	1920



STONER, DR. DAYTON, N. Y. State Museum, Albany, N. Y.....	1922
STONER, EMERSON AUSTIN, Box 444, Benicia, Calif.....	1922
STORROW, MRS. EDWARD CABOT, South St., Needham, Mass.....	1925
STOUT, CLIFFORD RAY, 431 N. Hough St., Barrington, Ill.....	1931
STREET, PHILLIPS B., 203 Highland Ave., Ithaca, N. Y.....	1933
STREIT, RAYMOND E., 50 Broadway, New York, N. Y.....	(1921-1924) 1929
STRONG, WILLIAM ABNER, 247 Grand Ave., San Jose, Calif.....	1924
STRUNK, WILLIAM LEONARD, Decorah, Iowa.....	1930
STUART, EDWARD TOBEY, JR., 205 Glenn Rd., Ardmore, Pa.....	1925
STUPKA, ARTHUR, Acadia National Park, Bar Harbor, Maine.....	1934
STUPP, JACK PHELPS, Box 1014, Price Road, St. Louis, Mo.....	1934
STURGIS, IRVIN S., 1616 Main St., Lexington, Mo.....	1934
STURGIS, MRS. SAMUEL DAVIS, c/o Col. Julius Cournot, 1616 21st St., Wash- ington, D. C.....	1925
STURTEVANT, EDWARD, St. George's School, Newport, R. I.....	1896
SUGDEN, DR. JOHN WILLIAM, 1743 Yale Ave., Salt Lake City, Utah.....	1927
SULLIVAN, WALTER FRANCIS, 351 Turk St., San Francisco, Calif.....	1924
SUMNER, EUSTACE LOWELL, JR., Mus. Vert. Zool., Berkeley, Calif.....	1926
SUTHARD, JAMES GREGORY, 7004 Chappel Ave., Chicago, Ill.....	1923
SVIHLA, ARTHUR, State College, Pullman, Wash.....	1925
SWAIN, JOHN MERTON, 15 Pleasant St., Farmington, Maine.....	1899
SWALES, MRS. BRADSHAW HALL, 2921 Albemarle St., Washington, D. C. (1928-1931)	1932
SWANSON, GUSTAV ADOLPH, 3305 47th Ave., S., Minneapolis, Minn.....	1928
SWEDENBORG, ERNIE DAVID, 4905 S. Vincent Ave., Minneapolis, Minn.....	1927
SWEET, HERMAN ROYDEN, Biol. Lab., Divinity Ave., Cambridge, Mass.....	1933
SWOPE, DR. EUGENE, Roosevelt Bird Sanctuary, Oyster Bay, N. Y.....	1921
SYGODA, DAVID FRANK, 232 Beaumont St., Manhattan Beach, Brooklyn, N. Y.....	1933
SYPUŁSKI, JOHN LAWRENCE, 203 N. Ingalls St., Ann Arbor, Mich.....	1934
TABER, WENDELL, 6 Rollins Place, Boston, Mass.....	1933
TALBOT, LESTER RAYMOND, 12 Forest Rd., Greenwood, Mass.....	1920
TANNER, JAMES TAYLOR, 67 Greenbush St., Cortland, N. Y.....	1933
TANNER, OREY, 5019 Constance St., New Orleans, La.....	1932
TATNALL, SAMUEL ALSOP, 503 Hansberry St., Philadelphia, Pa.....	1916
TAVERNER, MISS IDA CLARE, 45 Leonard Ave., Ottawa, Ont., Can.....	1926
TAVISTOCK, MARQUIS OF, Warblington House, Havant, Hants, Eng.....	1928
TAYLOR, ALEXANDER R., Cayce, S. C.....	1907
TAYLOR, EDMUND R., 408 Rosemary Lane, Chapel Hill, N. C.....	1933
TAYLOR, HORACE, 294 Walnut St., Brookline, Mass.....	1917
TAYLOR, LAURENCE H., 135 Main St., Williamstown, Mass.....	1928
TAYLOR, DR. LEWIS WALTER, Poultry Div., Univ. Calif., Berkeley, Calif.....	1925
TAYLOR, LIONEL EDWARD, R. R. 1, Saanichton, B. C., Can.....	1913
TAYLOR, OTIS BOYD, 1826 W. Grace St., Richmond, Va.....	1934
TAYLOR, DR. WALTER PENN, 1746 E. 5th St., Tucson, Ariz.....	1916
TAYLOR, WARNER, 619 N. Frances St., Madison, Wis.....	1916
TEACHENOR, DIX, 1020 W. 61st St., Kansas City, Mo.....	1919
TEE-VAN, JOHN, 120 E. 75th St., New York, N. Y.....	1921
TERRES, JOHN KENNETH, 224 Maypole Rd., Upper Darby, Pa.....	1934
TERRILL, LEWIS MCIVER, 64 Stanley Ave., St. Lambert, Que., Can.....	1907
TERRY, DR. ROBERT JAMES, 5149 Westminster Place, St. Louis, Mo.....	1919

TEST, PROF. LOUIS AGASSIZ, 511 Russell St., West Lafayette, Ind.	1929
THABES, MRS. JOHN ALOIS, SR., 417 Holly St., Brainerd, Minn.	1920
THACHER, LOUIS BARTLETT, JR., 192 Hinckley Road, Milton, Mass.	1931
THACKER, THOMAS LINDSAY, Little Mountain, Hope, B. C., Can.	1928
THOMAS, ALLAN MARVIN, Graham School, Hastings on Hudson, N. Y.	1934
THOMAS, EDWARD SINCLAIR, 1116 Madison Ave., Columbus, Ohio	1922
THOMAS, HENSEN HOFF, P. O. Box 625, Pomeroy, Ohio	1930
THOMAS, R. M., 298 Gairy St., Winnipeg, Man., Can.	1922
THOMPSON, JOHN WALCOTT, 527 East First South St., Salt Lake City, Utah	1916
THOMPSON, LOVELL, 136 Myrtle St., Boston, Mass.	1923
*THORNE, MRS. WILLIAM VAN SCHOONHOVEN, 810 5th Ave., New York, N. Y.	1925
THOWLESS, HERBERT LANDO, 255 4th St., Newark, N. J.	1919
TILLISCH, MISS MARY AGNES, 3205 17th Ave. S., Minneapolis, Minn.	1922
TINDALL, CHARLES WALTER, 912 N. Noland St., Independence, Mo.	1919
TINKER, ALMERIN DAVID, 519 Oswego St., Ann Arbor, Mich.	1907
TOLFREE, EDWARD ROGERS, 25 W. 45th St., New York, N. Y.	1921
TOLMAN, RINKE, Nieuwe Weg 115, Soest, Holland	1928
TOMKINS, IVAN REXFORD, U. S. Engineer Dept., Savannah, Ga.	1928
TOMLIN, DR. FRANCIS HENRY, 2 West Main St., Haddonfield, N. J.	1927
TOMLINSON, IRVING CLINTON, 137 Marlborough St., Boston, Mass.	1920
TONKIN, GEORGE, Federal Bldg., Winona, Minn.	1932
*TORREY, DR. HENRY NORTON, 575 Lake Shore Road, Grosse Pointe, Detroit, Mich.	1927
TOWNSHEND, HENRY HOTCHKISS, 35 Hillhouse Ave., New Haven, Conn.	1915
TOWNSON, JOHN, 2104 Queen St. East, Toronto, Ont., Can.	1931
TRAEGER, JOHN HECKEWELDER, 79 W. Market St., Bethlehem, Pa.	1926
TRAUTMAN, MILTON BERNHARD, Mus. Zool., Univ. Mich., Ann Arbor, Mich.	1924
TREADWAY, JOHN FOWLES, Williams Inn, Williamstown, Mass.	1931
TRIMBLE, MISS RUTH, 309 Eicher Ave., Greensburg, Pa.	1932
TROUSLOT, R. B., P. O. Box 373, Walnut Creek, Calif.	1933
TRUESDELL, JOHN FESSENDEN, 6310 Franklin Circle, Hollywood, Calif.	1918
TUCKER, CARLL, 733 Park Ave., New York, N. Y.	1929
*TUCKER, MRS. CARLL, 733 Park Ave., New York, N. Y.	1924
TUFTS, ROBIE WILFRID, Wolfville, Nova Scotia, Can.	1919
TURNBULL, JAMES DOUGLAS, 2065 West 48th Ave., Vancouver, B. C.	1927
TURRELL, LORING WATSON, Smithtown Branch, L. I., N. Y.	1927
TURTLE, LANCELOT JAMES, 17-21 Castle Place, Belfast, Ireland	1928
TUTTLE, HENRY CARLISLE, 50 State St., Boston, Mass.	1930
TUTTLE, HENRY EMERSON, 271 Park St., New Haven, Conn.	1909
TUTTLE, NORRIS, 30 State St., Cambridge, Mass.	1926
TWITCHELL, ADAMS HOLLIS, Flat, Alaska	1918
TWOMEY, ARTHUR CORNELIUS, Camrose, Alberta, Can.	1930
TYLER, BRUCE PHILIPS, 215 W. Unaka Ave., Johnson City, Tenn.	1934
TYLER, JOHN GRIPPER, Box 173, Fresno, Calif.	1912
TYRRELL, WILLIAM BRYANT, 404 Frederick Rd., Catonsville, Md.	1922
UHLER, FRANCIS MOREY, Biol. Survey, Dept. Agr., Washington, D. C.	1924
*UNDERDOWN, HENRY TENER, 8216 Manor Rd., Elkins Park, Pa.	1921
UNGLISH, WILLIAM ELMER, 345 N. Rosanna St., Gilroy, Calif.	1924
USSHER, RICHARD DAVY, Nancy Lake Farm, R. R. 2, King, Ont., Can.	1931
VALENTINE, MISS MARGUERITE ELSIE, 18 E. 66th St., New York, N. Y.	1933

VAN DYKE, REV. TERTIUS, 'Avalon,' Princeton, N. J.....	1930
VAN HYNING, DR. THOMPSON, State Museum, Univ. Florida, Gainesville, Fla.....	1926
VAN MARLE, JOHANN GOTTLIEB, Beethovenstraat 65, Amsterdam, Holland.....	1928
VAN NAME, WILLARD GIBBS, Am. Mus. Nat. Hist., New York, N. Y.....	1900
VAN SCHAICK, DR. JOHN, JR., 176 Newbury St., Boston, Mass.....	1926
VAN TIENHOVEN, DR. PIETER GERBRAND, c/o Nederlandse Vereeniging tot Beschermining van Vogels, Heerengracht 540, Amsterdam, Holland.....	1928
VAN TYNE, CLAUDE HALSTEAD II, 1942 Cambridge Road, Ann Arbor, Mich.....	1925
VARLEY, JAMES ARTHUR, 99 Glencairn Ave., Toronto, Ont., Can.....	1926
VASICEK, JOHN MATTHEW, 10605 Lamontier Ave., Cleveland, Ohio.....	1932
VERGES, EUGENE MARCELIN, 2ND, 1126 Beacon St., Brookline, Mass.....	1931
VERWEY, JAN, Zool. Station, Den Helder, Holland.....	1928
VESTAL, MRS. ROBERT, 1803 Lake Ave., Knoxville, Tenn.....	1927
VETTER, DR. CHARLES, Grand View, Nyack, N. Y.....	1898
VILLALBA, GASTON SANCHEZ, Calle B No. 10, Vedado, Habana, Cuba.....	1934
VIVIAN, HON. MRS., Mas des Chenes, Vence, A. M., France.....	1931
VOGEL, HOWARD H., JR., Woodmere Academy Bird Club, Woodmere, N. Y.....	1931
VOGT, WILLIAM, Jones Beach Bird Sanctuary, Wantagh, L. I., N. Y.....	1928
VORHIES, DR. CHARLES TAYLOR, Univ. Ariz., Tucson, Ariz.....	1918
WADE, JOSEPH SANFORD, Bur. Entomology, Dept. Agriculture, Washington, D. C.....	1929
WAGNER, MISS ESTHER ELIZABETH, 11 8th Ave., Danbury, Conn.....	1932
WALCOTT, CHARLES FOLSOM, 77 Sparks St., Cambridge, Mass.....	1923
*WALCOTT, HON. FREDERIC COLLIN, Norfolk, Conn..... (1913-15)	1921
WALCOTT, JUDGE ROBERT, 910 Barrister's Hall, Boston, Mass.....	1924
WALKER, CHARLES FREDERIC, 53 Latta Ave., Columbus, Ohio.....	1927
WALKER, ERNEST PILLSBURY, Apt. 103, 3016 Tilden St., N. W., Washington, D. C.....	1918
WALKER, ROLAND, Biol. Lab., Rennselaer Poly. Inst., Troy, N. Y.....	1924
WALKINSHAW, DR. LAWRENCE HARVEY, 1421 W. Michigan Ave., Battle Creek, Mich.....	1929
WALLER, LITTLETON WALLER TAZEWEILL, JR., 5056 du Pont Bldg., Wilmington, Del.....	1928
WALLIS, JOSIAH KENDALL, 132 Holder Hall, Princeton, N. J.....	1926
WALSH, LESTER LEWIS, 15 Walthery Ave., Ridgewood, N. J.....	1925
WALTER, DR. HERBERT EUGENE, 67 Oriole Ave., Providence, R. I.....	1901
WALTERS, FRANK, 512 Grand Central Palace, New York, N. Y.....	1902
WANAMAKER, PAUL, 443 Seminole St., Oradell, N. J.....	1930
WANLESS, JOHN, 6 Teraulay St., Toronto 2, Ont., Can.....	1928
WARBURTON, STANTON, JR., 3516 No. 33d St., Tacoma, Wash.....	1928
WARD, FRANK HOWLEY, 18 Grove Place, Rochester, N. Y.....	1908
WARD, HENRY LEVI, 6316 W. Washington Blvd., Wauwatosa, Wis.....	1906
WARFIELD, BENJAMIN BRECKINRIDGE, Wolfeboro, N. H.....	1930
WARMBATH, JULIAN SAMUEL, U. S. National Museum, Washington, D. C.....	1933
WARRINGTON, HENRY, Jackson, Amador Co., Calif.....	1927
WATKINS, ALLAN GODFREY, Dept. Botany, Tulane Univ., New Orleans, La.....	1929
WATSON, ARTHUR TILLEY, 1301 West 10th St., Des Moines, Iowa.....	1929
WATSON, CHARLES GRAY, 201 Ridout St., S., London, Ont., Can.....	1919
WEAVER, CLIFTON S., 299 Park Ave., New York, N. Y.....	1934
WEBER, ALOIS JOHN, 904 Grand Ave., Keokuk, Iowa.....	1928

WEBER, JAY ANTHONY, 151 Grand Ave., Leonia, N. J.....	1907
WEBER, WALTER ALOIS, 1025 Wade St., Highland Park, Ill.....	1928
WEBSTER, MRS. JENNIE ELLIS BURDICK, 468 4th Ave., New York, N. Y.....	1917
WEED, CLARENCE MOORES, State Normal School, Lowell, Mass.....	1924
WEEMS, FONTAINE CARRINGTON, 23 Wall St., New York, N. Y.....	1931
WEISER, CHARLES SPANGLER, 105 W. Springettsbury Ave., York, Pa.....	1916
WELD, JOHN CALDERWOOD, Taft School, Watertown, Conn.....	1931
WELLER, MRS. SELDEN, 224 Fulton St., Hempstead, Long Island, N. Y.....	1934
*WELLING, YENS M., 1828 East 5th St., R. F. D. 1, Anderson, Ind.....	1924
*WELLMAN, REV. GORDON BOIT, 17 Midland Rd., Wellesley, Mass.....	1908
WELTER, WILFRED AUGUST, Dept. Sci., State Teachers College, Morehead, Ky.....	1930
WENDLE, MRS. JOSEPH, Bowton Lake, Barkerville, B. C., Can.....	1927
WETHERBEE, MRS. KENNETH BRACKETT, 11 Dallas St., Worcester, Mass.....	1929
WEYDEMEYER, WINTON, Fortine, Mont. ....	1925
WEYGANDT, DR. CORNELIUS, 6635 Wissahickon Ave., Philadelphia, Pa.....	1907
WEYL, EDWARD STERN, 6506 Lincoln Drive, Mt. Airy, Philadelphia, Pa.....	1921
*WHARTON, WILLIAM PICKMAN, Groton, Mass.....	1907
WHEELER, REV. HARRY EDGAR, Museum Dept., Public Library, Birmingham, Ala.....	1923
WHEELER, LESLIE, Lake Forest, Ill.....	1934
WHEELER, STAFFORD MANCHESTER, Westport Harbor, Mass.....	1928
WHITAKER, INNESS, Hotel Robert Fulton, 228 W. 71st St., New York, N. Y.....	1926
WHITAKER, JAMES DAVIES, 1857 Beacon St., Brookline, Mass.....	1924
WHITE, ALFRED FISHER, 1745 Waverley St., Palo Alto, Calif.....	1926
WHITE, EDWARD FRANCIS GEOFFREY, 185 Wurtemburg St., Ottawa, Can.....	1927
*WHITE, GEO. WHITNEY, Nat. Metropolitan Bank, Washington, D. C.....	1924
WHITE, JAMES SAMUEL, 6036 Kenmore Ave., Chicago, Ill.....	1928
WHITE, WILLIAM FOSTER, 89 Mayo Ave., Greenwich, Conn.....	1923
WHITLEY, HERBERT, Primley, Paighton, S. Devon, England.....	1928
WHITMAN, FRANK BURTON, JR., 103 Tyler St., Wollaston, Mass.....	1930
WHITNEY, ALVIN GOODNOW, State Mus., Albany, N. Y.....	1925
WHITNEY, HOWARD, 45 East St., Hartford, Conn.....	1921
WHITTAKER, CARTER READE, 279 Tenth St., N. E. Atlanta, Ga.....	1928
WHITTLE, CHARLES LIVY, River Crossroads, Peterborough, N. H.....	1916
*WHITTLE, MRS. HELEN GRANGER, River Crossroads, Peterborough, N. H.....	1904
WICKS, MRS. JUDSON LANE, 405 Essex Bldg., Minneapolis, Minn.....	1922
WICKS, DEAN ROBERT RUSSELL, Princeton University, Princeton, N. J.....	1933
WIEGMANN, DR. WILLIAM HENRY, 436 E. 5th St., New York, N. Y.....	1916
*WIGGLESWORTH, DR. EDWARD, Boston Soc. Nat. Hist., Boston, Mass.....	1920
WIGHT, H. MARSHALL, 1417 S. University Ave., Ann Arbor, Mich.....	1934
WILBUR, ADDISON PRENTISS, 60 Gibson St., Canandaigua, N. Y.....	1895
WILCOX, LeROY, Speonk, L. I., N. Y.....	1927
WILCOX, THOMAS FERDINAND, 118 E. 54th St., New York, N. Y.....	1895
WILDER, GEORGE DURAND, Am. Board Missions, Tehsien, Shantung, China...	1929
WILEY, MISS FARIDA ANNA, Cor. Prospect Ave. & Willow St., Douglaston, L. I., N. Y.....	1925
WILKINSON, ALEXANDER STANLEY, Kapiti Island Bird Sanctuary, Paraparamon P. O., North Island, via Wellington, N. Z.....	1929
WILLARD, BERTEL BLIDDEN, 51 Fresh Pond Pky., Cambridge, Mass.....	1906



WILLARD, OSCAR THEODORE, 5343 Blackstone Ave., Chicago, Ill.	1919
WILLIAMS, ELLISON ADGER, 27 Limehouse St., Charleston, S. C.	1923
WILLIAMS, LAIDLAW ONDERDONK, P. O. Box 453, Carmel, Calif.	1919
**WILLIAMS, ROBERT STATHAM, Botanical Gardens, Bronx, New York, N. Y.	1888
WILLIAMS, ROLAND, 163 Bertling Lane, Winnetka, Ill.	1925
WILLSON, BOB, Box 402, Handley, Texas.	1934
WILSON, MRS. ETTA SMITH, 9077 Clarendon Ave., Detroit, Mich.	1917
WILSON, DR. FRANK NORMAN, 804 Lawrence St., Ann Arbor, Mich.	1922
WILSON, GORDON, 1434 Chestnut St., Bowling Green, Ky.	1919
WINEMAN, ANDREW, 150 Michigan Ave., Detroit, Mich.	1932
WING, GEORGE STUART, Rt. 3, Jackson, Mich.	1924
WING, LEONARD WILLIAM, Conservation Comm., Madison, Wis.	1929
WINSON, JOHN WILLIAM, Huntingdon, B. C., Can.	1928
WISE, JOHN SERGEANT, 73 Westcott Road, Princeton, N. J.	1930
WITHEY, GEORGE ALEXANDER, L. Box 33, Antler, N. Dak.	1927
WOLFE, CAPT. LLOYD RAYMOND, 1819 W. Pershing Rd., Chicago, Ill.	1922
WOOD, DR. HAROLD BACON, 3016 North 2nd St., Harrisburg, Pa.	1929
WOOD, MERRILL, 3016 North 2nd St., Harrisburg, Pa.	1927
WOODHULL, DR. MAURICE WELSH, Cottonwood Falls, Chase Co., Kans.	1928
WOODLETON, MRS. HELEN SAUNDERS, 454 Seventh St., Brooklyn, N. Y.	1933
WOODS, HARRY EARLE, P. O. Box 216, Huntington, Mass.	1924
*WOODS, ROBERT S., Box 356, Azusa, Los Angeles Co., Calif.	1926
WOOLMAN, MISS ANNA, 21 N. Highland Ave., Lansdowne, Pa.	1920
WOOLMAN, EDWARD, Box 128, Haverford, Pa.	1925
WOOLSET, RALPH A., 519 E. 3d St., Shakapee, Minn.	1932
WOOLSTON, WILLIAM JENKS, W. Chestnut Ave., Chestnut Hill, Philadelphia, Pa.	1925
WORCESTER, MRS. ALFRED, 314 Bacon St., Waltham, Mass.	1905
WORK, MRS. ROBERT, Bosky Acres, Barrington, Ill.	1934
WORKMAN, WILLIAM HUGHES, Lismore, Windsor Ave., Belfast, Ireland.	1928
WORTH C(HARLES) BROOKE, St. David's Ave., St. Davids, Pa.	1927
WRIGHT, FRANK SMITH, 14 Cayuga St., Auburn, N. Y.	1917
*WRIGHT, GEORGE MELENDEZ, 213 Hilgard Hall, Univ. Calif., Berkeley, Calif.	1927
WUNDERLE, HORACE GODFREY, JR., Rydal, Pa.	1930
WYNNE-EDWARDS, PROF. VERO COPNER, McGill Univ., Montreal, Can.	1930
WYTHE, MISS MARGARET WILHELMINA, Mus. Vert. Zool. Univ. Calif., Berkeley, Calif.	1924
*YAMASHINA, MARQUIS YOSHIMARO, 49 Nanpeidai, Shibuya-machi, near Tokyo, Japan.	1927
YEARY, JOHN CY., c/o King Ranch, Kingsville, Texas.	1932
YEATLER, RALPH EMERSON, Ill. State Nat. Hist. Surv., Urbana, Ill.	1926
YODER, WILLIAM HENRY, JR., 859 Granite St., Philadelphia, Pa.	1923
YOUNG, ARTHUR FRANKLIN, 254 Keeth Road East, North Vancouver, B. C., Can.	1931
YOUNG, CHARLES HENRY, Nat. Mus. Canada, Ottawa, Ont., Can.	1931
YOUNG, REV. CHARLES JOHN, Kingston, Ont., Can.	1918
YOUNG, JOHN PAUL, Ithaca, N. Y.	1911
YOUNG, WALLACE PARK, 36 Ridout St., Toronto, Ont., Can.	1925
YOUNG WORTH, WILLIAM, 3119 East Second Street, Sioux City, Iowa.	1930
ZAMBRA, COMM. RAG. VITTORIO, Corso Umberto I, 49, Rome, Italy.	1928
ZELENY, LAWRENCE, 613 East River Road, Minneapolis, Minn.	1924
ZIMMERMAN, HAROLD ALEXANDER, 915 W. Gilbert St., Muncie, Ind.	1929

DECEASED MEMBERS.<sup>1</sup>

(List published at intervals of 5 years; last publication in 1930.)

## FELLOWS.

ALDRICH, CHARLES, '09, 218; '10, 119-124, por.....	March 8, 1908
*ALLEN, JOEL ASAPH, '21, 490-492; '22, 1-14, por.....	Aug. 29, 1921
BAIRD, SPENCER FULLERTON, '87, 273, por., 358-359; '88, 1-14.....	Aug. 19, 1887
BANGE, OUTRAM, '32, 516; '33, 265-274, por.....	Sept. 22, 1932
BARROWS, WALTER BRADFORD, '23, 376-377; '25, 1-14, por.....	Feb. 26, 1923
BEAL, FOSTER ELLENBOROUGH LASCELLES, '17, 112, 243-264, por.....	Oct. 1, 1916
BENDIRE, CHARLES EMIL, '97, 253; '98, 1-6, por.....	Feb. 4, 1897
BICKNELL, EUGENE PINTARD, '25, 475-476; '26, 143-149, por.....	Feb. 9, 1925
*BREWSTER, WILLIAM, '19, 628; '20, 1-23, por.....	July 11, 1919
COOKE, WELLS WOODBRIDGE, '16, 354-355; '17, 119-132, por.....	March 30, 1916
*CORY, CHARLES BARNEY, '21, 492-493; '22, 151-166, por.....	July 31, 1921
*COUES, ELLIOTT, '00, 91; '01, 1-11, por.....	Dec. 25, 1899
DEANE, RUTHVEN, '34, 282; '35, 1-14, por.....	March 20, 1934
DUTCHER, WILLIAM, '20, 636; '21, 501-513, por.....	July 1, 1920
*DWIGHT, JONATHAN, '29, 279; '30, 1-6, por.....	Feb. 22, 1929
*ELLIOT, DANIEL GIRAUD, '16, 230-231; '17, 1-10, por.....	Dec. 22, 1915
FORBUSH, EDWARD HOWE, '29, 279-280; '30, 137-146, por.....	March 8, 1929
FUERTE, LOUIS AGASSIZ, '27, 594; '28, 1-26, por.....	Aug. 22, 1927
Goss, NATHANIEL STICKNEY, '91, 245-247.....	March 10, 1891
HENSHAW, HENRY WETTERBEE, '30, 600-601; '32, 399-427, por.....	Aug. 1, 1930
HOLDER, JOSEPH BASSETT, '88, 220.....	Feb. 28, 1888
JEFFRIES, JOHN AMORY, '92, 311-312.....	March 26, 1892
LOOMIS, LEVERETT MILLS, '28, 263-264; '29, 1-13, por.....	Jan. 12, 1928
McILWRAITH, THOMAS, '03, 242; '04, 1-7, por.....	Jan. 31, 1903
MEARNS, EDGAR ALEXANDER, '17, 113-114; '18, 1-18, por.....	Nov. 1, 1916
MERRILL, JAMES CUSHING, '03, 90-91; '10, 113-119, por.....	Oct. 27, 1902
MILLER, WALDRON DEWITT, '29, 577-578; '32, 1-8, por.....	Aug. 7, 1929
NEHRING, HENRY, '30, 133; '32, 153-158, por.....	Nov. 22, 1929
*NELSON, EDWARD WILLIAM, '34, 431-432; '35, 135-148, por.....	May 19, 1934
PALMER, WILLIAM, '21, 493-494; '22, 305-321, por.....	April 8, 1921
PURDIE, HENRY AUGUSTUS, '11, 387; '12, 1-15, por.....	March 29, 1911
RICHMOND, CHARLES WALLACE, '32, 392; '33, 1-22, por.....	May 19, 1932
*RIDGWAY, ROBERT, '29, 280-281; '33, 159-169, por.....	March 25, 1929
*SAGE, JOHN HALL, '25, 613-615; '26, 1-17, por.....	Aug. 16, 1925
SENNETT, GEORGE BURRITT, '00, 193; '01, 11-23, por.....	March 18, 1900
TOWNSEND, CHARLES WENDELL, '34, 432.....	April 3, 1934
TRUMBULL, GURDON, '04, 310.....	Dec. 28, 1903
WAYNE, ARTHUR TREZEVANT, '30, 452; '31, 1-16, por.....	May 5, 1930
WHEATON, JOHN MAYNARD, '87, 174.....	Jan. 28, 1887
WIDMANN, OTTO, '34, 130.....	Nov. 26, 1933

<sup>1</sup> Figures immediately following names indicate references to biographical sketches in 'The Auk' or in a few cases to other publications. An asterisk (\*) indicates a former President of the Union.

## RETIRED FELLOWS.

BELDING, LYMAN, '18, 106; '20, 33-45, por.	Nov. 22, 1917
GILL, THEODORE NICHOLAS, '15, 139-140, 391-405, por.	Sept. 25, 1914
LAWRENCE, NEWBOLD TROTTER, '30, 7-10, por.	Aug. 14, 1928
LUCAS, FREDERIC AUGUSTUS, '29, 281-282; '30, 147-158, por.	Feb. 9, 1929
SHUFFELDT, ROBERT WILSON, '34, 282-283.	Jan. 21, 1934

## HONORARY FELLOWS.

BARBOZA DU BOCAGE, JOSÉ VICENTE, '08, 496-497.	Nov. 3, 1907
BERLEPSCH, HANS [CARL HERMANN LUDWIG], '15, 539.	Feb. 27, 1915
BLANFORD, WILLIAM THOMAS, '07, 118-119.	June 23, 1905
BURMEISTER, KARL HERMANN KONRAD, '92, 399-400.	May 1, 1892
CABANIS, JEAN LOUIS, '06, 247.	Feb. 20, 1906
CAMPBELL, ARCHIBALD JAMES, '30, 133.	Sept. 12, 1929
DRESSER, HENRY EELES, '16, 232.	Nov. 28, 1915
DUBOIS, ALPHONSE JOSEPH CHARLES, '27, 157-158.	June 1, 1921
FINSCH, FRIEDRICH HERMANN OTTO, '18, 381-382.	Jan. 31, 1917
FURBRINGER, MAX, '22, 591.	March 6, 1920
GADOW, HANS FRIEDRICH, '28, 538-539.	May 16, 1928
GÄTKE, HEINRICH, '97, 254.	Jan. 1, 1897
GIGLIOLI, ENRICO HILLYER, '10, 240, 484-485.	Dec. 16, 1909
GODMAN, FREDERICK DUCANE, '19, 319.	Feb. 19, 1919
GUNDLACH, JOHANNES CHRISTOPHER, '96, 267.	March 17, 1896
GURNEY, JOHN HENRY, '90, 299-300.	April 20, 1890
GURNEY, JOHN HENRY, JR., '23, 718-719.	Nov. 15, 1922
HARTERT, ERNST [JOHANN OTTO], '34, 283-286.	Nov. 11, 1933
HARTLAUB, [KARL JOHANN] GUSTAV, '01, 219.	Nov. 20, 1900
HARVIE-BROWN, JOHN ALEXANDER, '16, 458.	July 26, 1916
HUME, ALLAN OCTAVIAN, '27, 473-474.	July 31, 1912
HUXLEY, THOMAS HENRY, '95, 316; '96, 93-96.	June 29, 1895
IHERING, HERMANN VON, '30, 452-453.	Feb. 24, 1930
KRAUS, FERDINAND, '91, 120.	Sept. 15, 1890
LAWRENCE, GEORGE NEWBOLD, '95, 198-199; '96, 1-10, por.	Jan. 17, 1895
MEYER, ADOLF BERNHARD, '11, 519.	Feb. 5, 1911
MILNE-EDWARDS, ALPHONSE, '00, 320-321.	April 21, 1900
NEWTON, ALFRED, '07, 365-366.	June 7, 1907
PARKER, WILLIAM KITCHEN, '90, 411-412.	July 3, 1890
PELZELN, AUGUST VON, '91, 400; '92, 74-75.	Sept. 2, 1891
SALVADORI PALEOTTI, ADELARDO TOMMASO, '24, 384-385.	Oct. 9, 1923
SALVIN, OSBERT, '98, 286, 343-345.	June 1, 1898
SAUNDERS, HOWARD, '08, 103-104.	Oct. 20, 1907
SCHALOW, HERMAN, '26, 412-413.	Dec. 9, 1925
SCHLEGEL, HERMANN, '84, 205-206.	Jan. 17, 1884
SCLATER, PHILIP LUTLEY, '14, 1-12, por.	June 27, 1913
SEEBOHM, HENRY, '96, 96-97.	Nov. 26, 1895
SHARPE, RICHARD BOWDLER, '10, 124-129, por.	Dec. 25, 1909
SUSHKIN, PETER PETROVICH, '29, 149.	Sept. 17, 1928
TACZANOWSKI, LADISLAS [CASIMIROVICH], '90, 218.	Jan. 17, 1890
VAN OORT, EDUARD DANIEL, '34, 562.	Sept. 21, 1933
WALLACE, ALFRED RUSSEL, '14, 138-141.	Nov. 7, 1913

CORRESPONDING FELLOWS.<sup>1</sup>

ALPHERAKY, SERGIUS NIKOLAEVICH, '21, 495.....	1918
ALTUM, JOHANN BERNARD THEODOR, Otn. Monatsber., 1900, 49-54... Feb. 1, 1900	
ANDERSON, JOHN, '02, 118.....	Aug. 15, 1900
BAILEY, HARRY BALCH, '28, 264-265; '29, 155-160, por.....	Feb. 10, 1928
BALDAMUS, AUGUSTE KARL EDUARD, '95, 94-95.....	Oct. 30, 1893
BEDDARD, FRANK EVERS, '26, 413.....	July 14, 1925
BIANCHI, VALENTIN LYOVICH, '21, 497-498.....	Jan. 10, 1920
BLAKISTON, THOMAS WRIGHT, '92, 75.....	Oct. 15, 1891
BLASIUS, [PAUL HEINRICH] RUDOLPH, '08, 248.....	Sept. 21, 1907
BLASIUS, WILHELM AUGUST HEINRICH, '12, 571.....	May 31, 1912
BOGDANOW, MODEST NIKOLAEVICH, '88, 333-334.....	March 16, 1888
BONHOTE, JOHN LEWIS JAMES, '23, 720-721.....	Oct. 10, 1922
BROOKS, WILLIAM EDWIN, '00, 194.....	Jan. 18, 1899
BRYANT, WALTER [PIERC] E., '05, 332, 439-441; '06, 376.....	May 21, 1905
BULLER, WALTER LAWRY, '07, 119.....	July 19, 1906
BUTLER, ARTHUR GARDINER, '25, 615-616.....	May 28, 1925
BUTLER, EDWARD ARTHUR, '17, 114.....	April 16, 1916
BUTTIKOFER, JOHANNES, '28, 418-419.....	June 24, 1927
CHAMBERLAIN, MONTAGUE, '24, 643-644.....	Feb. 10, 1924
CHAPMAN, ABEL, '29, 286-287.....	Jan. 24, 1929
CHROSTOWSKI, TADEUSZ, '25, 476-478.....	April 4, 1923
CHUBB, CHARLES, '24, 646-647.....	June 25, 1924
COLLETT, ROBERT, '13, 318.....	Jan. 27, 1913
COOPER, JAMES GRAHAM, '02, 421-422.....	July 19, 1902
CORDEAUX, JOHN, '99, 377-378.....	Aug. 1, 1899
DALGLEISH, JOHN JAMES, '30, 305.....	Dec. 29, 1921
DAVID ARMAND, '02, 118-119.....	Nov. 10, 1900
DOLE, SANFORD BALLARD, '27, 160-161.....	June 9, 1926
DUGES, ALFREDO, '12, 434.....	Jan. 7, 1910
ECHT, EDUARD BACHOFEN VON, '23, 721.....	May 22, 1922
ELWES, HENRY JOHN, '27, 159-160.....	Nov. 26, 1922
FATIO, VICTOR, '06, 356, 484-485.....	March 19, 1906
FEILDEN, HENRY WEMYSS, '21, 496.....	June 18, 1921
FORBES, STEPHEN ALFRED, '30, 453-454.....	March 13, 1930
FREKE, PERCY EVANS, '34, 562-563.....	March 20, 1931
GIRTANNER, GEORG ALBERT, Jahrb. St. Gall. Naturwiss. Ges., '07, 122-133, por.....	June 4, 1907
GODWIN-AUSTEN, HENRY HAVERSHAM, '24, 512-513.....	Dec. 2, 1923
GOELDI, EMIL AUGUST, '17, 510.....	July 5, 1917
GRANDIDIER, ALFRED, '22, 453.....	Sept. 13, 1921
HAAST, JOHANN FRANZ JULIUS VON, '26, 576-577.....	Aug. 16, 1887
HARGITT, EDWARD, '95, 315.....	March 19, 1895
HARTING, JAMES EDMUND, '28, 265-266.....	Jan. 16, 1928
HAYEK, GUSTAV EDLER VON, '11, 388.....	Jan. 9, 1911
HERMAN, OTTO, '15, 539-540, por.....	Dec. 27, 1914
HOLUB, EMIL, '03, 92.....	Feb. 21, 1902
HOMER, EUGEN FERDINAND VON, '89, 341.....	May 31, 1889

<sup>1</sup> Brasil, Louis, '19, 449..... Oct. 15, 1918.  
Nominated and elected Nov. 11, 1918, before notice of his death was received.



HUDSON, WILLIAM HENRY, '23, 719-720	Aug. 18, 1922
IHERING, HERMANN VON, '30, 452-453	Feb. 24, 1930
KNUDSEN, VALDEMAR, '13, 159	Jan. 8, 1898
KRUKENBERG, CARL FRIEDRICH WILHELM, '30, 455	Feb. 18, 1889
KRUPER, THEOBALD JOHANNES, '22, 148-149	March 23, 1921
LAYARD, EDGAR LEOPOLD, '00, 321-322	Jan. 1, 1900
LEACH, JOHN ALBERT, '30, 134	Oct. 3, 1929
LEGGE, WILLIAM VINCENT, '18, 510-511	March 25, 1918
LE SOUËF, WILLIAM HENRY DUDLEY, '24, 385-386	Sept. 6, 1923
LEYERKÜHN, PAUL, '06, 247	Dec. 5, 1905
LILFORD, LORD (THOMAS LYTTELTON POWYS), '96, 348	June 17, 1896
MACGILLIVRAY, WILLIAM DAVID KERR, '34, 563-564	June 25, 1933
MADARÁSZ, JULIUS VON, '32, 269-271	Dec. 29, 1931
MALMGREN, ANDERS JOHAN, '98, 79, 214-215	April 12, 1897
MARSCHALL, AUGUST FRIEDRICH, '89, 80	Oct. 11, 1887
McFARLANE, RODERICK ROSS, '22, 203-210, por	April 14, 1920
MEINERTZHAGEN, ANNIE CONSTANCE JACKSON (MRS. RICHARD MEINERTZ- HAGEN), '28, 539	July 6, 1928
MIDDENDORFF, ALEXANDER THEODOROVICH, '94, 264	Jan. 28, 1894
MILLAIS, JOHN GUILLE, '31, 472-473	March 24, 1931
MOSEJOVICS VON MOJSVAR, FELIX GEORG HERMANN AUGUST, '98, 79, 215	Aug. 27, 1897
NAMIYE, MOTOYOSHI, '19, 628-629	May 24, 1918
NICHOLSON, FRANCIS, '26, 413-414	Feb. 10, 1925
NICOLL, MICHAEL JOHN, '26, 414-415	Oct. 31, 1925
NORTH, ALFRED JOHN, '17, 510-511	May 6, 1917
OATES, EUGENE WILLIAM, '12, 434	Nov. 16, 1911
OGILVIE-GRANT, WILLIAM ROBERT, '24, 644-645	July 26, 1924
OUSTALET, [JEAN FRÉDÉRIC] ÉMILE, '06, 355-356	Oct. 23, 1905
PALMEN, JOHAN AXEL, '20, 511-512	April 7, 1919
PHILIPPI, RUDOLF AMANDUS, '27, 158-159	July 23, 1904
PRENTISS, DANIEL WEBSTER, '00, 91-92	Nov. 19, 1899
PRJEVALSKY, NICOLAS MICHAELOVICH, '89, 80-81	Nov. 1, 1888
PRYER, HARRY JAMES STOVIN, '88, 332-333	Feb. 17, 1888
RADDE, GUSTAV FERDINAND RICHARD VON, '03, 458-459	March 15, 1903
RAMSEY, EDWARD PIERSON, '17, 376	Dec. 16, 1916
ROBINSON, HERBERT CHRISTOPHER, '29, 578-579	May 30, 1929
SCHIOELER, EILER LEHN, '30, 305-306	Aug. 13, 1929
SCHRENCK, LEOPOLD VON, '94, 264	Jan. 26, 1894
SÉLYS-LONGCHAMPS, MICHEL EDMOND DE, '01, 219, 292-293	Dec. 11, 1900
SEVERTZOW, NICOLAS ALEKSYEVICH, '85, 224	Feb. 8, 1885
SHELLEY, GEORGE ERNEST, '11, 387-388	Nov. 29, 1910
SIMON, EUGÈNE LOUIS, '25, 478	Nov. 17, 1924
SNETHLAGE, EMILIE, '31, 161-162	Nov. 25, 1929
STEVENSON, HENRY, '89, 79-80	Aug. 18, 1888
SWANN, HARRY KIRKE, '26, 415-416	April 14, 1926
TRISTRAM, HENRY BAKER, '06, 484	March 8, 1906
TSCHUZI ZU SCHMIDHOFFEN, VICTOR VON, '26, 137-138	March 5, 1924
WATERHOUSE, FREDERICK HERSCHEL, '21, 496-497	March 12, 1919
WHARTON, HENRY THORNTON, '96, 97	Aug. 22, 1895

WHITE, HENRY LUKE, '28, 419-420.....	May 30, 1927
WINGE, ADOLF HERLUF, '25, 174-175.....	Nov. 10, 1923
WOODHOUSE, SAMUEL WASHINGTON, '05, 104-106.....	Oct. 23, 1904
WORCESTER, DEAN CONANT, '24, 645-646.....	May 2, 1924
ZEDLITZ UND TRUTZSCHLER, OTTO VON, '28, 418.....	Dec. 4, 1927
ZELEDON, JOSÉ CASTULO, '23, 682-689, por.....	July 16, 1923

## MEMBERS.

ATTWATER, HENRY PHILEMON, '32, 144-145.....	Sept. 25, 1931
BAGG, EGBERT, '15, 540.....	July 11, 1915
BARLOW, CHESTER, '03, 92-93.....	Nov. 6, 1902
BOWLES, JOHN HOOPER, CONDOR, '34, 91.....	Feb. 2, 1934
BROWN, HERBERT, '13, 472.....	May 12, 1913
CAMERON, EWEN SOMERLED, '15, 540-541.....	May 25, 1915
CLARK, JOHN NATHANIEL, '03, 242-243.....	Jan. 13, 1903
CROSBY, MAUNSELL SCHIEFFELIN, '31, 320-322.....	Feb. 12, 1931
DAGGETT, FRANK SLATER, '20, 508-509.....	April 5, 1920
DAWSON, WILLIAM LEON, '28, 417.....	April 30, 1928
DEANE, WALTER, '30, 601-602.....	July 30, 1930
DICKEY, DONALD RYDER, '32, 517-518.....	April 15, 1932
EATON, ELON HOWARD, '35.....	March 27, 1934
EVERMANN, BARTON WARREN, '33, 465-466.....	Sept. 27, 1932
FANNIN, JOHN, '04, 510.....	June 20, 1904
FARLEY, JOHN AUSTIN, '30, 461-462.....	March 17, 1930
FORDYCE, GEORGE LINCOLN, '31, 647-648.....	June 25, 1931
HARDY, MANLY, '11, 149-150.....	Dec. 9, 1910
HOFFMANN, RALPH, '32, 518-519.....	July 21, 1932
HOLLISTER, NED, '25, 478-480.....	Nov. 3, 1924
JOB, HERBERT KEIGHTLEY, '34, 130-131.....	June 17, 1933
JUDD, SYLVESTER DWIGHT, Who's Who, '01, 617.....	Oct. 22, 1905
KNIGHT, ORA WILLIS, '14, 141-142.....	Nov. 11, 1913
KNOWLTON, FRANK HALL, '27, 156-157.....	Nov. 22, 1926
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*Putnam Drew,*  
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# THE AUK:

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IN MEMORIAM: RUTHVEN DEANE,  
1851-1934.

BY WILFRED H. OSGOOD.

*Plate I.*

From its beginning, the American Ornithologists' Union has been notable for cordial, intimate relations among its members. These have been carried in many cases to deep and enduring affection—so often, in fact, that they have seemed inseparable from it. Perhaps they are due in part to the nature of their common interest, but looking backward, they seem to have been especially inspired and fostered by certain individuals whose influence has never waned. Among these, no one finds a greater place than Ruthven Deane. Our debt to him, therefore, can scarcely be measured, for the human relation in any organization is the vital one.

In 1865, at the end of the Civil War and eighteen years before the first meeting of the American Ornithologists' Union, Ruthven Deane was one of three fifteen-year-old boys actively collecting birds and eggs in the vicinity of Cambridge, Massachusetts. With William Brewster and Henry Henshaw he made up a trio at that early date whose passion for birds and for each other was destined to carry long and far. If these enthusiastic boys in their teens did not furnish the foundations of the greatest period in American Ornithology, at least no history of it ever can be written without taking them into account. For the several years just passed, after Brewster and Henshaw were gone, Deane remained as a living link between the present and other days which now seem almost romantic. That he should have this distinction for a few short years was a kind and singularly appropriate turn of fate, for among his strongest characteristics were a deep interest and natural delight in events and personalities of the past.

A great phrase-maker and keen judge of men, no less than former President Theodore Roosevelt, once characterized Deane as a "heart ornithologist." This is related by Colonel E. B. Clark, a mutual friend, and happened

on one of Roosevelt's crowded visits to Chicago. Knowing that the busy public man always would find time to meet a naturalist, Clark arranged for his two friends to come together and in doing so remarked that perhaps it wasn't necessary to explain who and what Mr. Deane was. To this Roosevelt quickly replied, in effect: "I should say not. I haven't met him, but I know of him and he is what I call a heart ornithologist." It would have been difficult for those who knew him long and intimately to come so near the truth in so few words.<sup>1</sup> That Roosevelt should have done so was perhaps not only because of his capacity for succinct expression, but also because his own heart yearned not a little in the same direction.

Ruthven Deane was born in Cambridgeport, Massachusetts, August 20, 1851. He died in Chicago, March 20, 1934, in his eighty-third year. He was one of the younger of six children and the influences surrounding his early life were involved in a combination of business and culture such as only New England could supply. His father, Charles Deane, of old Puritan stock, was born in Biddeford, Maine, in 1813, son of Ezra Deane, M.D., who moved as a young man from Connecticut to Maine. His mother, Helen E. Waterston, was born in Boston, but was of direct Scotch descent, at least on one side, since her father came to America from Scotland in 1806. His father went, at the age of nineteen, to Boston and there rapidly rose from salesman to partner in a firm of dry goods commission merchants. He was so successful he retired at the age of fifty-one and thereafter for twenty-five years devoted himself to an early bent for historical study. In this field he attained much distinction as a writer and student active in the Massachusetts Historical Society and the American Antiquarian Society. At his death in 1889, he had accumulated a library especially rich in early Americana and numbering some twelve thousand volumes. As early as 1866 he had the honor of election to the American Academy of Arts and Sciences, and in 1886, at the celebration of Harvard's two hundred and fiftieth anniversary, he was one of a select and distinguished company to receive the honorary degree of Doctor of Laws. In a broad way one finds considerable parallel in the life of his son Ruthven who also entered business early, retired early, and pursued his chosen interests to the end.

Although he might have done so, and doubtless at parental expense, Ruthven did not go to college. In later life he expressed regrets for this, but at the time a desire to make his own way evidently was irresistible. His formal education, therefore, was limited to the grammar school and several private schools. At about eighteen years of age he obtained employment in Boston with the house of Dana Bros., engaged in the importation of

<sup>1</sup> This and some other passages following are taken with or without alteration from an appreciation of Ruthven Deane published in the summer Bulletin of the Illinois Audubon Society in 1925.

sugar and molasses from the West Indies. The Boston Fire of 1872 resulted in his transference to the insurance business where he continued until 1880 when he moved to Chicago to join his brother, Charles E. Deane, in the wholesale grocery firm of Deane Bros. and Lincoln. After twenty-three years this business was sold and he retired in 1903 at the age of fifty-two. In 1885 he married Martha R. Towner, daughter of Henry A. Towner, a prominent merchant and member of the Chicago Board of Trade. Mrs. Deane rarely attended meetings of the A. O. U. with her husband, but her acquaintance among ornithologists was widened through the years during which great numbers of them were individually entertained in her home. Many ornithologists also met their two sons, Charles Deane, now resident in Haywards, California, and H. Towner Deane, recently one of the younger vice-presidents of Chicago's largest bank. Of Deane's three brothers, the eldest, Walter Deane,<sup>1</sup> was an amateur botanist of considerable note and directly connected with ornithology through his position as an assistant to William Brewster in his private museum for the ten years 1897 to 1907.

The inception of Deane's interest in birds is not recorded, but apparently it was quite well-established when he was a mere lad. He often mentioned the influence which William Brewster had upon him, but perhaps it was mutual. As schoolmates and neighbors, only sixteen days apart in age, he and Brewster were much together in the glamorous days of the first horse-back ride, the first boating trip, and the first use of a firearm. Both were entranced by outdoor life and sport and doubtless their interests developed together. Brewster writes in his 'Birds of the Cambridge Region,' as follows: "On January 1, 1862, my friend, Mr. Daniel C. French, called at our house to give me my first lesson in taxidermy." At that time Brewster was only eleven and French was but one year older. Apparently Deane was not present, but he could not have been far behind since almost immediately he is found with Brewster, French, and Richard Dana actively collecting and "stuffing" birds. A little later, in 1865, Henry Henshaw joined the group and Henry A. Purdie, some ten years older than the others, also was included in many of the local excursions. After a period in which they laboriously mounted their birds, as was then commonly done, they were taught by C. J. Maynard to make the modern type of conventional bird skins.

Their collections, previously small, and doubtless not wholly pleasing, grew rapidly and their enthusiasm was greatly stimulated. Deane's first "stuffed" bird was a House Wren which he referred to as resembling a "feathered clothespin." Another early attempt was a Snowy Owl, which, despite imperfections, stood on a bookcase in his old home for sixty years.

The environs of Cambridge at that time provided a fruitful field of

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<sup>1</sup> See *The Auk*, 47, p. 601, 1930.

activity and the boys were not slow to take advantage of it. They were out early and late and, in the case of Deane, who soon had a business occupation, it was necessary to do most of the hunting from sunrise to breakfast, and the skinning well into the night. This, however, is what has made many a good ornithologist. Certain localities were favorites, as Fresh Pond, where both Deane and Brewster had their own boats, and Vassall Lane which led through a variety of conditions. The days of eager youth and an unfolding passion for an apparently limitless field of fascinating interest were never to be forgotten. Brewster's picture of them may well be quoted, as follows: "Some of the pleasantest recollections of my boyhood relate to the country traversed by Vassall Lane, and extending west and east from the site of the old Cambridge reservoir at the junction of Reservoir and Highland Streets to Fresh Pond, and north and south from Concord Avenue nearly to Brattle Street. Throughout this area, now so thickly settled, there was not then a building of any kind. Most of the land was occupied by broad, smooth mowing lands; hubbly and, in places, boggy pastures; and fine old apple orchards, many acres in extent. There were also one or two bushy swamps, several groves of large oaks, a conspicuous cluster of tall white pines, a few isolated shell-bark hickories of the finest proportions, and a number of scraggy wild apple trees. There the dandelions and buttercups were larger and yellower, the daisies whiter and more numerous, the jingling melody of the Bobolinks blither and merrier, the early spring shouting of the Flicker louder and more joyous, and the long-drawn whistle of the Meadow-lark sweeter and more plaintive, than they ever have been or ever can be elsewhere, at least in my experience. It was here that I spent most of my school holidays in the early sixties, collecting birds in company with Daniel C. French, now an eminent sculptor, or with Ruthven Deane, the well-known ornithologist. In early spring we pursued the shy Redwings from tree to tree or beat the wet hollows for Wilson's Snipe, often flushing the latter birds by scores, but only very rarely and by the merest chance bringing one to bag. The migrating Warblers, Vireos, Sparrows, Flycatchers, etc., which frequented the orchards and scattered groves or thickets later in the season, proved easier of capture and supplied us with many a specimen whose novel beauty or imagined rarity thrilled our youthful senses with wonder and delight."

The zest of friendly rivalry among the boys naturally added to their enjoyment. Testimony as to this is given by Henshaw, who writes: "I recall an experience of our collecting days which we considered then a good joke on Ruthven Deane. He and I had found the nest of a Red-tailed Hawk, a capital prize at that time, which was built in the top of a tall and venerable oak. As I never was an adept at 'shinning a tree,' Ruthven was elected to do the climbing, at which he was past master. He had progressed well up



towards the nest when suddenly we heard the near-by call of a Great Crested Flycatcher, a rare bird in our experience and which, indeed, I had never seen up to that time. Thus suspended between heaven and earth, Ruthven was unable to do anything more than hang on, and watch my successful efforts to stalk and collect the rarity while he voiced his opinion of my reprehensible conduct in thus taking advantage of a brother collector."

It is to be noted that it was Deane who did the "shinning" and this as well as other incidents shows he was the most aggressive of the trio of ardent collectors. In later life, although never especially devoted to any of them, he retained a lively interest in many forms of sport and competitive games such as golf and billiards. Fly-fishing, for example, was very dear to him, and continued so throughout life. Duck-shooting, purely as sport, also had much attraction for him. In a sense, but in a thoroughly sound and refined sense, he was more worldly than either Brewster or Henshaw, or for that matter the majority of professional ornithologists. Doubtless it was this that led him into a business career, that made him the efficient officer in early ornithological organizations, and that, as time went on, developed his interest in ornithologists rather than in ornithology.

The early morning, week-end, and holiday collecting near Cambridge continued, but was soon widened by expeditions farther afield. In 1868, Deane went with a friend to Nova Scotia for a short trip during which he did some collecting. He records especial pleasure in meeting in Halifax a veteran, old-fashioned naturalist and taxidermist, Mr. Andrew Downs, who at once became a hero in his eyes when it was disclosed that he had actually met Audubon in person. Later in the same year, Deane, Brewster and French went to Rye Beach, New Hampshire, where they shot shorebirds in the early mornings, and Ruffed Grouse and Woodcock in the afternoons. In 1870 he went no less than three times to Lake Umbagog, Maine, twice with Brewster and once with Harry B. Bailey. Two trips were made to Mount Katahdin and the Moosehead Lake region in Maine. In 1874 he spent two weeks with Brewster and Ernest Ingersoll near Petroleum, West Virginia, where the number of birds new to their experience gave them unusual pleasure. One of the last trips of this kind was to Houlton, Maine, near the Canadian border, in 1878, when Henry A. Purdie was his companion. They had what was doubtless at that time a supreme joy and excitement in discovering the nests and eggs of the Winter Wren and the Yellow-bellied Flycatcher, events which were duly recorded later in the 'Nuttall Bulletin.'

Deane's collection of bird skins made in his early youth reached a total of something more than a thousand carefully prepared specimens. These were taken with him to Chicago in 1880, but thereafter he found little time for active collecting and, the stimulus of his early companions being gone,

he gave up the idea of forming a very large collection and only made additions along a few special lines. After some years the entire collection was deposited with the Chicago Academy of Sciences where it was long available for consultation by local bird students. In 1926 the entire collection passed, by purchase, to Mr. Stephen S. Gregory, Jr., of Winnetka, Illinois, in whose careful hands its preservation is insured for years to come. Previously a special collection of albinotic birds, which had been his hobby for a few years after coming to Chicago, was presented to the Field Museum of Natural History. At the time of his death practically the only specimens of birds in his possession were two beautiful Passenger Pigeons with which he had never been able to part.

The Nuttall Ornithological Club, forerunner of the A. O. U., was formed by the Cambridge group to which Deane belonged and it is evident that his energy and enterprise had much to do with its success. The actual genesis of the Club was the inevitable result of a sequence of events which is related by Henshaw as follows:<sup>1</sup>

"It is surprising how trivial incidents may lead to important and unforeseen consequences. Mr. Brewster possessed a copy of the octavo edition of Audubon's "Birds," and the discoveries and experiences of this pioneer of American ornithology often formed the topic of our conversation, especially when his account of species familiar to us differed from our own experiences. As I was less acquainted with the writings of Audubon than he was, I suggested the plan of reading aloud a chapter of Audubon and then discussing it. The plan soon becoming known to Ruthven Deane, Henry Purdie, and, later to W. E. D. Scott and Ernest Ingersoll, they joined us around the cozy winter fire in Brewster's house, and many pleasant and profitable evenings were thus spent. Soon others expressed a desire to join the little circle, and from this small beginning was born in due time the Nuttall Ornithological Club."

While others promoted the spirit of the Club and contributed each in his way to its aims and standards, it was Deane who was the real wheelhorse in practical ways. He was the first Secretary from 1873 to 1876; then Corresponding Secretary from 1876 to 1880, and Treasurer from 1877 to 1880. He himself has written rather grimly of these days, thus: "As the Club treasury was small, we endeavored to float the Bulletins from the amounts received from subscriptions, and it was the Secretary's job to raise these subscriptions. I have often wondered how many hours, each day and evening, I spent in writing all over the country and sending Vol. 1, No. 1 for bait, besides personal solicitation. By writing to many of the young men with whom I had made exchanges, they would send me a list of their correspondents to whom I might apply, but it took constant work, for

<sup>1</sup> Autobiographical Notes, *The Condor*, 21, pp. 166, 167, July 1919.

the annual subscription at that time was only a dollar. However, we paid our bills, though I often had a borrowing account with my father until the next issue was ready." He might also have mentioned that it was he who addressed the wrappers and affixed the stamps for the regular mailings of the Bulletin. Those who have known Ruthven Deane in later years can readily imagine how he kept the postman busy in a real emergency and not a few will perhaps remark this as the only known instance of his having more letters to write than was comfortable.

The removal to Chicago in 1880 marked the end of a fairly definite period in his life, the period of youth and early manhood in which many strong personal ties were formed and the period in which a knowledge of birds in the field was gained which could serve as a background and foundation for whatever aspect of ornithology might later have his interest. Probably the hardest thing for him to relinquish was his active participation in the affairs of the Nuttall Club. It was not strange, therefore, to find him one of the organizers of the Ridgway Ornithological Club in Chicago in 1883. Among kindred spirits in this project were G. Frean Morcom and Henry K. Coale and for a short time there seemed hope of fruitful growth, but, although the seed was good it was scanty and mixed with tares and the ground was not fertile, so the result was failure.

Of far greater importance to Deane was the organization of the A. O. U. in 1883. He was among those invited to the first meeting in New York, but was unable to attend and was not one of the twenty-three designated at that time as Founders. At this original meeting, however, he was elected an Active Member (i. e. Fellow) and thenceforward until the day of his death this connection carried a loyal and absorbing interest for him that was almost phenomenal. Although meetings of the Union were almost invariably held in eastern cities, his record of attendance is scarcely equaled by that of any other member. Especially during its early years and even after it had grown to large proportions, the A. O. U., was to him one great family, over the intimate personal affairs of which he seemed to feel a sort of responsibility.

In 1898 he was elected a member of the Council of the Union and for thirty-six years continued to serve in that capacity. He was also long a member of the Finance Committee and was especially effective on the Committee on Biography and Bibliography. At the meetings, he only occasionally contributed to the program, but he never missed a business session or a social function, and he was indefatigable in going about among the members and making intimate contacts with each and all. At those unforeseen, impromptu, and very highly fraternal gatherings which sometimes formed in the headquarters hotel before or after bedtime he was sure to be present, preserving a fine dignity but enjoying every quip and keenly

observant of each participant. Between meetings, in spite of his comparative isolation in a city where for many years members were few, his interest in the A. O. U. never lagged and through correspondence and every possible direct contact he kept the membership conscious of their "heart" interests.

In 1897, when the Audubon Society was getting under way as a national movement, Deane found an opportunity to exercise his talents and his interests in the home field. On April 1st of that year the Illinois Audubon Society, the fourth of the state societies, was organized with Ruthven Deane as its first president. Thereafter he was successively reelected for sixteen years and under his leadership the society became one of the largest and most effective in the country. After retirement from office he continued jealous of the Society's welfare and helpful in its progress. As has been said elsewhere, he was its parent, guardian, and guide.

The historical and biographical side of ornithology early became very attractive to him and all his later life he showed even keener interest in manuscripts, books, and personalities connected with birds than in birds themselves. His business responsibilities and the circumstances of his retired life in Chicago precluded the development of a career as a professional. Therefore, he devoted himself to various hobbies, nearly all directly related to birds. In his love for books, he was his father's own son and, given the means, he might have become a great bibliophile and collector of books. His income was modest, however, and although books were a great temptation to him, he saw clearly that he must limit himself in this direction. His personal library, therefore, never grew to very large size, but it was very carefully selected and included various scarce items, for which he had a trained eye, and quantities of associational material, all gathered and arranged by himself. Here, as elsewhere, the human, intimate, personal relation dominated his interest and he took infinite pains in ferreting out personalia relating to authors whose books he possessed. Picking a book at random from his shelves, one was likely to find both back and front covers, fly leaves, and any blank spaces carefully set with autograph letters, portraits, clippings, reviews, and similar matter.

He had three especial hobbies, Auduboniana, portraits of ornithologists, and bookplates. All of them were followed effectively with tangible results which attracted considerable attention. Among those who knew him slightly or only by reputation he was not infrequently referred to as "the Audubon man." His interest in Audubon might naturally have developed without early stimulation, but at least it appears that there were several instances in his youth in which Audubon figured prominently. One was the reading aloud from Audubon with Brewster and Henshaw which has been mentioned. Another was a set of Audubon's "Birds" in the possession of his grandfather Waterston which had been subscribed to in the presence of



his father when he was a clerk in Waterston's employ. This set passed to his uncle, his mother's brother, by whom it was finally bequeathed to Ruthven himself. Most of those who knew him were familiar with his acquaintance with Audubon's granddaughters, especially Miss Maria R. Audubon, but few realized that this acquaintance began in 1876 and became a warm friendship which continued until her death in 1925. In one of the last letters he received from her she remarked: "Did you ever know that we had corresponded just fifty years?" Largely through Miss Maria Audubon, Deane obtained access to, and in some cases possession of, many interesting letters and manuscripts handed down from her famous ancestor. Most of these he arranged, annotated, and published, mainly in 'The Auk,' from 1901 to 1905. Everything concerning the great pioneer artist and naturalist was almost sacred to him. His visit to the Audubon home in Salem, New York was no less than a pilgrimage and he took the greatest delight in examining and handling relics which Audubon brought back from his Missouri River trip in 1843. Once at an A. O. U. meeting he exhibited, as if it had been a precious jewel, a piece of wood taken from Audubon's mill at Henderson, Kentucky. He took great pains to make personal examination of various copies of the great folio and to trace successive owners, sales, prices, and everything pertaining to them. His own collection of Auduboniana was not large, because he spent money very sparingly on his hobbies and seemed to feel that it was unsportsmanlike to do so, but he accumulated besides letters and manuscripts, a few books from Audubon's personal library, presentation copies from him to others and copies of most of the well-known biographies. A treasured item was a bound collection of clippings and notices, reviews, and comments about Audubon and his journals willed to him by Miss Audubon.

There is perhaps nothing for which Deane was so well known as his voluminous correspondence and his wide acquaintance among naturalists. Many of his letters to his confreres, perhaps most of them, were simply "heart" letters, sending a word of congratulation on some work performed, a bit of news, a new joke with an avian turn to it, or, surest of all, a warm sympathy if all was not well. His eye for personal news of ornithologists was extraordinary. Doubtless often through his personal correspondence, but sometimes by means apparently approaching the occult, he was always the first to know of any slight happening to any of the fraternity of bird lovers. If one suffered an illness, got married or divorced, had a business reverse, inherited a fortune, or changed his residence from one street to another, Deane could be depended upon to have the information forthwith, not only as to the main facts, but also as to the causes, accessories and implications.

In many cases he continued correspondence practically for a lifetime. The fifty years in which it was unbroken with Miss Audubon have been

mentioned; but there were many others. The record with John H. Sage is over fifty years; with A. K. Fisher it began in 1875, which makes nearly sixty years; with Jonathan Dwight and Charles F. Batchelder it was very long; and with some others it was almost as long. Dr. Thomas S. Roberts writes: "Beginning in the early nineties an unbroken exchange of letters continued up to the time of his last illness. Early realizing their special character, all these letters have been saved since 1899 and filed by year. They number 221. Aside from the purely personal matter, they contain so much about the A. O. U. and its personnel that it would be almost possible to write from them an intimate story of the Union." Another regular correspondent, Dr. Casey Wood, writes: "When the time arrives for the publication of complete biographies of New World ornithologists, the fame of Ruthven Deane as a letter-writer ought to be regarded as a genuine contribution to those histories. I am convinced that a collection of these letters, written during his long and colorful life, would form a most instructive and valuable single contribution and index to the origin and progress of American ornithology for the sixty or seventy most important years of its existence."

Deane's correspondence among his friends was greatly widened by his long-continued pursuit of portraits of ornithologists. This was carried on for a full half century. Beginning with the little circle of his own intimates he went on to include practically all the Founders, Fellows, Members, and better known Associates of the A. O. U. Then followed many of the Foreign Fellows of the Union and such other foreign students of birds as he could reach either directly or through relatives. Still further were others only connected with ornithology in some sentimental or practical way such as authors, explorers, taxidermists or men in whose honor birds had been named. Many of the more important subjects were represented from infancy to old age and were obtained only after much effort in which it was often necessary to induce someone to rifle the family album. The pictures were of various sizes, mostly mounted on original cards carrying the imprint of the photographer and a place name. On the back of each was the full name of the subject and vital data clearly and carefully inscribed by Deane himself. Sometimes the letter of transmittal or a slip with details was attached. They were kept in envelopes and besides actual photographic prints there were many woodcuts, lithographs, halftones, and reproductions from magazines and newspapers.

For some years before his death Deane realized the importance of finding a suitable depository for his collection of portraits. It numbered some eighteen hundred items and represented more than one thousand individual subjects. He was especially desirous of having it properly indexed with a compilation of biographical data for each subject and it was only after

eight years of correspondence that his conditions were finally met by the Library of Congress to which it was presented and delivered in January, 1934, only two months before his death. It is deposited in the Division of Fine Arts and the comprehensive index planned for it is under way with the co-operation of the A. O. U. Committee on Biography and Bibliography.

With a correspondence already that would stagger most men, he began about 1910 another undertaking which involved much letter writing. This was the collecting of bookplates. The available number of these representing ornithologists and naturalists was too small even to furnish him light exercise and he soon passed into the wide and slightly commercialized field of interest to collectors the world over. In a few years he had accumulated bookplates of such number, variety, and quality that he was invited to make a special public exhibition of them at the Art Institute of Chicago. Among them were some of prominent people, presidents, kings, and potentates, but his interests ran more to artists than subjects and he was at great pains to acquire complete or nearly complete series of the work of such artists as E. F. French, Sidney L. Smith, and J. W. Spenceley. In doing so the temptation to make direct purchases was very great, but it was only very rarely that he sent a bid to an auction and in confessing it he indicated his feeling that it was not the way of a true amateur. After twenty years the collection numbered about twelve thousand plates and during the last few years of his life he made only occasional additions to it. His own plate, beautifully engraved by Sidney L. Smith may be taken as his own best epitome of his life interests. In 1901, before bookplates had his special attention a simple woodcut was drawn for him in which the principal figure was a Passenger Pigeon. Much later this was replaced by the Smith plate which shows in a central frame a landscape of a kind to delight the eye of a duck-hunter and surrounding this in four large medallions at the corners are a Passenger Pigeon and a Great Auk at the top and portraits of Audubon and Wilson at the bottom, all drawn with great fidelity.

Practically all of Deane's own writings were published in 'The Auk' and the 'Bulletin of the Nuttall Ornithological Club.' As listed in the indexes they reach the surprising total of one hundred and twelve titles. Among these there are eighteen relating to Audubon and eleven dealing with the Passenger Pigeon. Many of them are quite brief, consisting for the most part of locality records, notes on albinos, historic specimens, and biographical matter. That they were so numerous is testimony to the great interest and activity of a man who always considered himself only an amateur.

After his retirement from active business, his life was one of relative freedom, but it followed year after year a similar program. In the spring there was a trout-fishing excursion; in the summer, the warm months were spent with his family on the coast of Maine, he himself usually playing a

daily round of golf; in the fall, there was attendance at the A. O. U. meeting in an eastern city; and the rest of the year he was absorbed with his correspondence and collecting. He maintained a small office in the business district of the city ostensibly for convenience in managing his estate, and he daily spent a few hours there with his brother Charles, but visitors to this office were likely to find his desk more occupied with ornithological correspondence than with business. His cozy apartment on North State Street was for years a storehouse of ornithological lore, and the passing bird men who spent delightful evenings there included practically every one of any renown who ever visited Chicago. He loved to entertain them and, if they were led to reveal all their personal affairs and those of their friends and relatives, they usually were unconscious of it and so, perhaps was he. The result was the same, and thereafter he knew them. As they sat in his study, supplied with his well-chosen after-dinner cigars, he would lead the conversation from a small swivel-chair at his desk. From time to time he would slip into a well stuffed pigeon-hole and slyly extract a letter, a clipping, or a photograph which would appear before them at the proper time and cause a laugh or an interesting discussion. His good humor was invariable and his quick interest in each individual always left an impression of warmth and sincerity.

In the early years in Chicago, Deane found his nearest approach to ornithologists among business men who were fond of duck-shooting. This fitted with his early experiences on Fresh Pond and elsewhere in New England and with his taste for old books dealing with shooting and sport. He was for some years one of a limited list of members in the English Lake Club which purchased several thousand acres in the Kankakee marshes just south of Chicago and enjoyed sport such as is now unobtainable. Upon draining the marshes the land became more valuable and the Club dissolved, but, as he afterwards remarked with a characteristic chuckle, what started as a recreation turned into a small bonanza, for each member retired with a substantial sum of money as his share of the property. The regular trout-fishing began in 1912 and for eighteen years following Deane missed only one season. His companions were his brother Charles, W. B. Mershon, Clark Ring, and one or two others who maintained a lodge on the Au Sable River in northern Michigan and who for a number of years had a private car in which to travel and live while fishing and hunting.

For business or personal reasons he traveled now and then to fairly distant points and at such times he seized every opportunity to visit local ornithologists, to look up scraps of data relating to Audubon or to gather in a few bookplates. As early as 1883 he went to Santa Barbara, California, by boat from San Francisco, since there was then no railroad. In San Francisco, he headed straight for Walter E. Bryant who entertained him



and showed him his collection and that of the California Academy of Sciences. In 1894 he went with members of the Chicago Board of Trade to Waco, Fort Worth, and Galveston, Texas. In 1909 he went down the St. Lawrence and visited in Quebec where he was especially interested in an old correspondent, Sir James M. Lemoine, who occupied a house where Audubon had once been entertained and whose garden had a path called "Audubon Avenue." Again, under similar conditions, he made a short trip to Florida and Cuba in 1912. As late as 1925 he traveled in California for the purpose of visiting his son Charles at Haywards, but in speaking of it afterwards he referred especially to the opportunity it gave him to see the house in which Dr. J. G. Cooper once lived.

For the last four or five years of his life Deane appeared much of the time to retain the full vigor and practically perfect health he had always enjoyed. He was much affected, however, by the deaths within three years from 1930 to 1933 of his sister and three brothers, all near his own age. He was also under some physical strain in the care he exercised in settling details of their affairs. In the winter of 1932-33 he had an illness which kept him in bed for some weeks and it was only after this that his friends noticed any reduction in the tempo of his bluff, hearty manner. He had in reality ceased to push several of his principal interests, but the outward evidence of it was scarcely apparent. During these latter years he found a new interest which may have been reminiscent of his youth. This was the naturalist's club called the Kennicott Club which was formed in Chicago in 1928 and which held somewhat informal monthly meetings in the basement of the park building occupied by the Chicago Academy of Sciences. Most of its members were quite young, all of them much younger than he, but he obviously took great delight in their company and rarely missed a meeting. The club seemed to supply something he needed, perhaps something he had always needed, but never before had realized in Chicago. He accepted the presidency for two years and frequently spoke at meetings. On one occasion he presented a somewhat abbreviated autobiography, a copy of which was preserved and, through the courtesy of his family, has been available for use in the preparation of the foregoing account of his life.

Among the company which formed the early list of the Fellows of the A. O. U., there were many of high attainment and just distinction. There was none other like Ruthven Deane, however, and as an individual he stood as sharply defined as any that could be mentioned. Like some of the others he was, at least in part, a product of his times and for that reason if no other his like will not be seen again. The part he played was a unique one—not that of a great student or teacher, not a creative part in the usual sense, and not one which strove for any kind of leadership; yet it was quite as unflagging and devoted as any of these and who shall say it was less

important. His entire life was centered in it and, although he stoutly proclaimed himself an amateur, he filled in to the great advantage of his professional contemporaries and thus to the entire production. His was the part that breathed warmth, delicacy and feeling in many directions, subtly supplying the kind of sentiment which is said to rule the world. He was, indeed, a heart ornithologist.

*Field Museum of Natural History,  
Chicago, Ill.*

THE GOSHAWK (*ASTUR ATRICAPILLUS ATRICAPILLUS*)  
NESTING IN WISCONSIN.

BY O. J. GROMME.

*Plates II-IV.*

In their 'Birds of Wisconsin,' Kumlien and Hollister considered the Goshawk "a rare summer resident at an early day," and state that there were no positive breeding records for Wisconsin, although the species perhaps bred in the northern portion of the state.

In his pamphlet on the 'Birds of Oconto County,' August Schoenebeck states that he found four nests but gives no data.

In view of the foregoing the following observations upon a nesting pair in Wisconsin will warrant publication.

On May 10, 1934, a letter from Mr. Francis Zirrer of Birchwood, Wis. stated that he had under observation a nesting pair of Goshawks and on May 16 Mr. Walter Pelzer of the Milwaukee Museum staff and I arrived at the home of Mr. Zirrer. He lives about seven miles out of Birchwood in Rusk County in the heart of a great expanse of second growth timber consisting of maple, birch and other characteristic flora which has replaced the original pine forest.

The nest was located on the property of Fire Warden De Jung, who, with Mr. Zirrer, assured us of their hearty co-operation and assistance in making our observations and photographs. It was indeed gratifying to meet men whose sympathies were with, instead of against the Hawks and who guarded their secret jealously, lest some Hawk-hating neighbor sneak in and kill the "hen hawks."

Mr. Zirrer found the nest during the winter of 1932 and being impressed by its large size kept it under observation. In the spring of 1933 a pair of Goshawks took the nest over and he watched the birds from the time they laid their eggs until the day the last of the three young left the nesting tree. He does not positively know whether or not the Goshawks used this nest previous to 1933.

Our first visit to the nest was one of reconnaissance. Much to my amusement, one of the party had provided himself with a stout club. The wisdom of this seemingly unnecessary precaution was, however, impressed forcibly later. Mr. Zirrer was alone on all former visits to the spot and although he did not go near the nest tree he was invariably attacked with great vigor by the adult female. The fact that there were four of us probably made her shy, as she made several half-hearted stoops and retired to a perch at a safe distance.

The nest was a very bulky affair built entirely of sticks and resting in a crotch against the main trunk of a large live yellow birch. It was built at a height of about 35 feet from the ground and the tree trunk at the nest measured about 14 inches in diameter.

At a distance of about 25 feet to the south stood another giant birch which was very conveniently placed for the building of an observation platform. The foliage growth had been considerably retarded by prolonged drought, making overhead photographic light available for nearly eight hours per day. After two hours of strenuous and back-breaking work, Pelzer had erected a perfectly safe and solid platform. During the building operations the adult birds remained away and made no protest.

Work was done quietly lest the suspicions of neighbors and passersby be aroused, as the nest was situated not far from a traveled road.

In order to obtain an unobstructed view of the nest from the blind, it was necessary to remove one of the large limbs which formed the nesting crotch and accordingly Pelzer climbed the tree. Then his troubles began. The old bird, which up to this time had remained comparatively quiet, decided that it was time to get to business. Pelzer was well below the nest, encumbered with a saw, hatchet and other paraphernalia and was trying to get a secure hold when the onslaught began. With a savage cry and vigorous strokes of her powerful wings, the bird gained terrific momentum and came down to her target like an airplane in a full power dive. She gave her victim a thump on the back that could be heard for some distance. Becoming bolder because of his inability to fight back, and with deadly deliberation, she whacked him again and again. Any man with less nerve would surely have gone down under the terrific pounding and cutting up. During her onslaughts all the raptorial savagery and wicked intent was manifest in her shrill savage voice. It is hard to imagine more pent-up fury and power in any being of her size. From the view-point of one protected by the blind and to those on the ground, the event was highly dramatic. When the nest level was reached and sawing began, the young squealed defiantly and the old female came to the defense with renewed vigor. But she quit the fight as suddenly as she began and work proceeded. The nest contained the hind quarters of a squirrel from which the hair had been plucked.

Being impatient for a first-time close-up view of the normal activities at the nest, my companions left me to spend the remaining hours of the afternoon in the blind.

The nest was a substantially built affair, measuring approximately six feet to the extremities of the outer straggling branches used in its construction, the largest of which were not over half an inch in diameter. It was neatly and evenly cupped and lined with smaller twigs. Around its edge

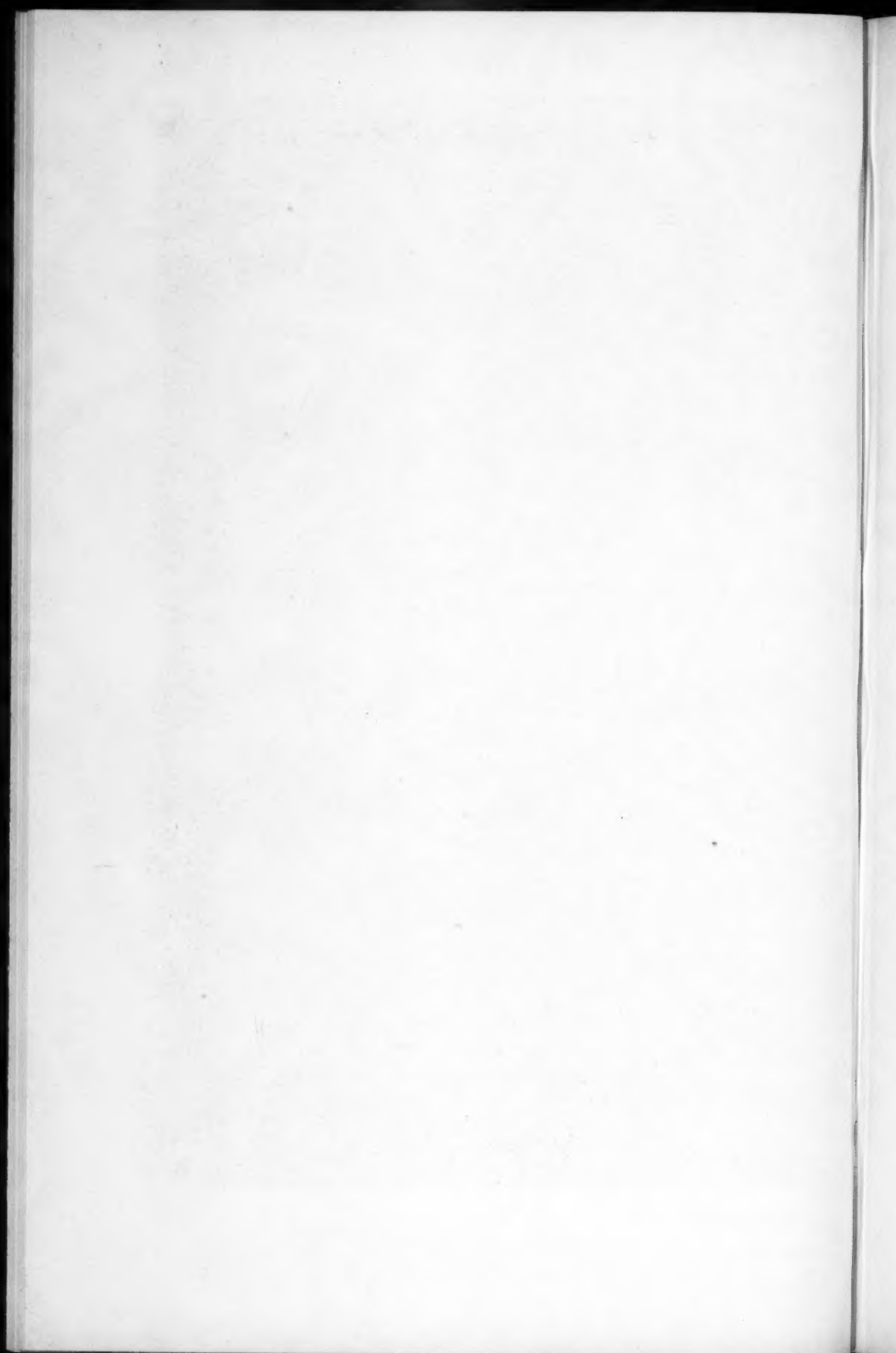




Milwaukee Pub. Mus. Photo.

GOSHAWK, NEST, AND YOUNG.  
FEMALE SCREAMING AT THE CAMERA.

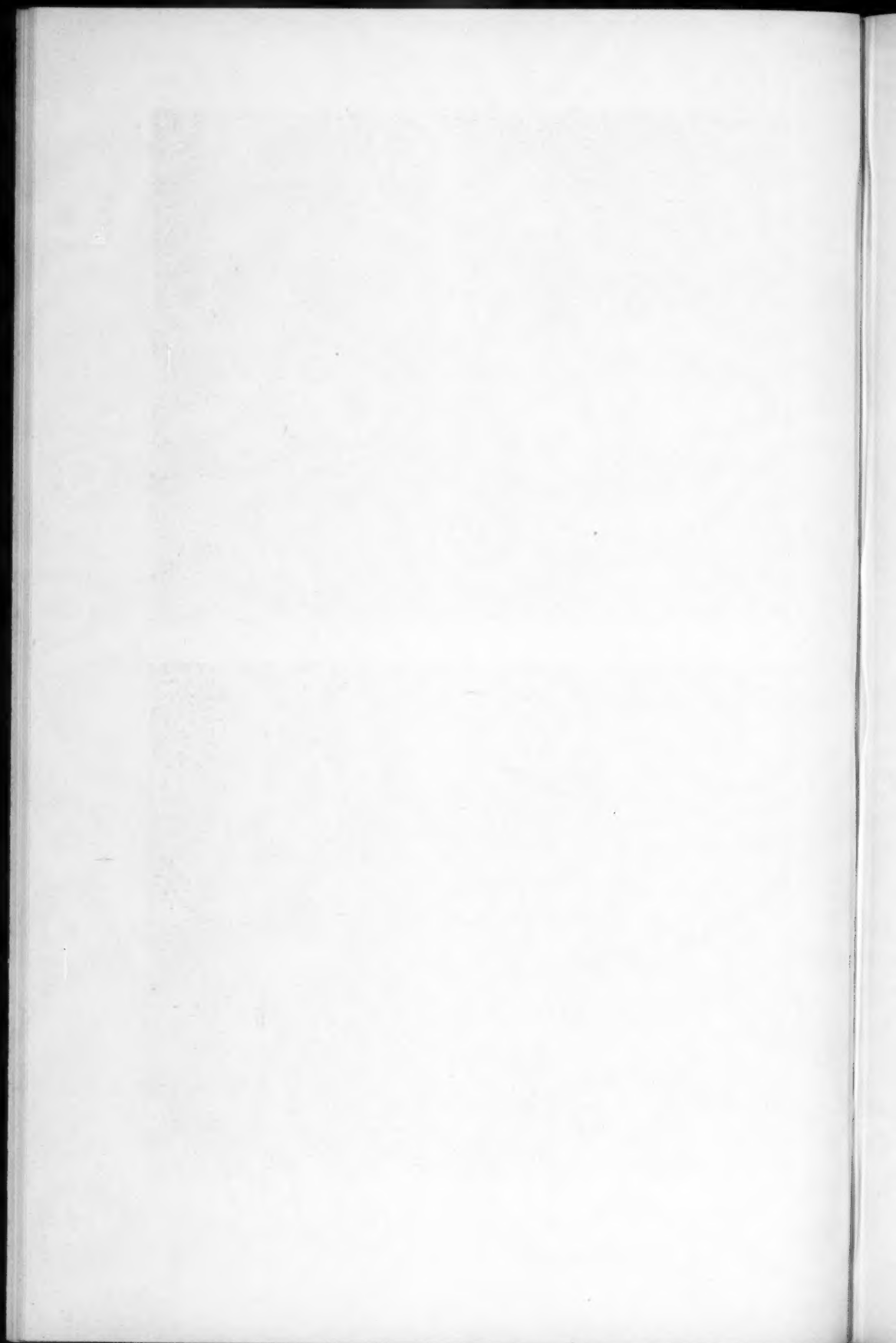






Milwaukee Pub. Mus. Photo.

UPPER: GOSHAWK AT NEST.  
LOWER: SCREAMING DEFIANCE.



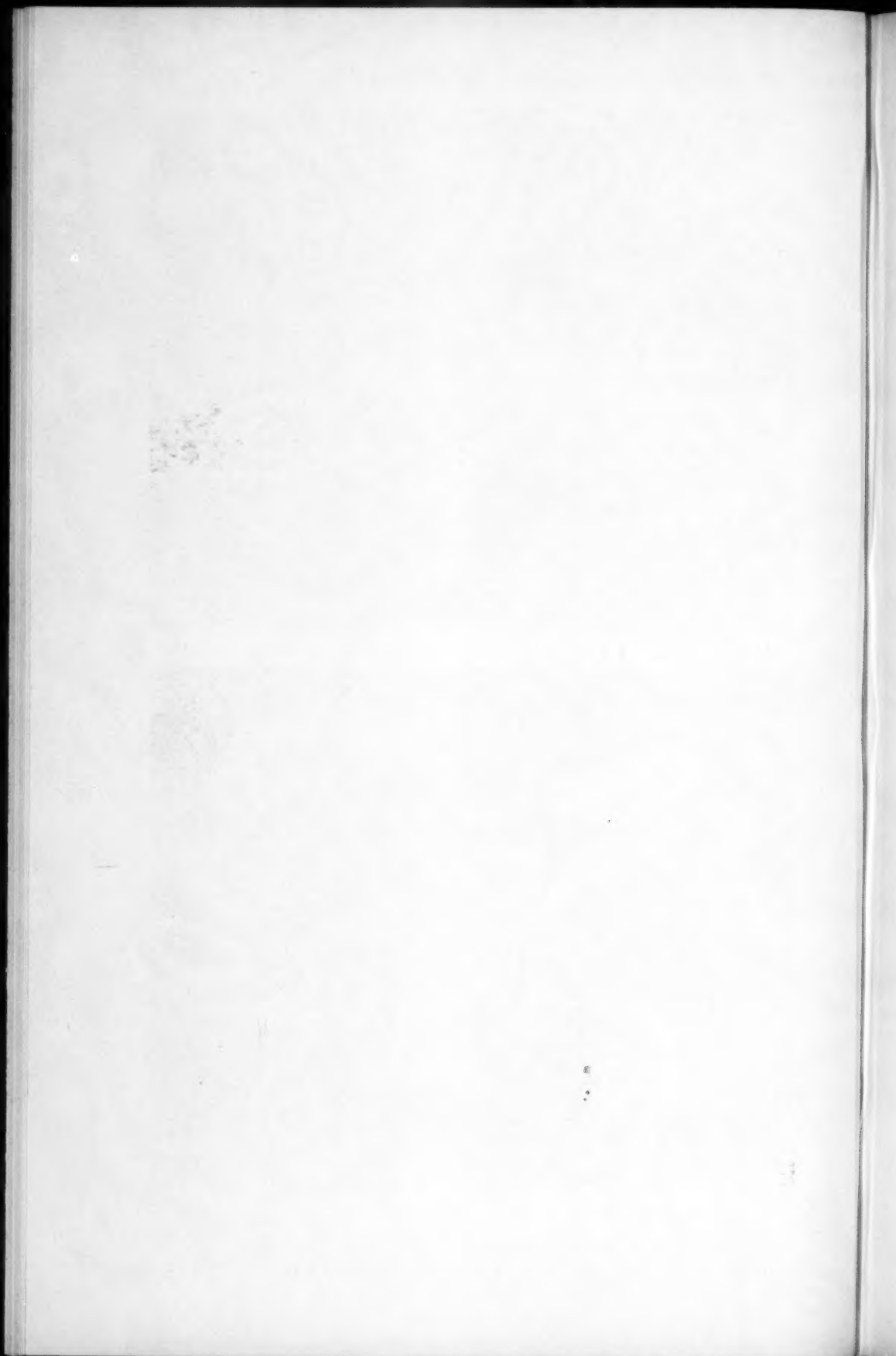




Milwaukee Pub. Mus. Photo.

UPPER: GOSHAWK FEEDING YOUNG.

LOWER: STARING AT BLIND; DISTURBED BY NOISE OF MOTION PICTURE CAMERA.



and facing inward were a few small, green balsam sprigs which lent an appearance of artistry and color.

The interior of the nest was as neat as a pin and excrement was evidently ejected high over its edge as very little appeared on the rim, but the ground and foliage below were considerably whitewashed. There were four downy young, one of which was decidedly smaller and weaker than the rest. The tips of the dark flight feathers were just visible beyond the woolly grayish-colored down of the wings of the two larger.

Mr. Zirrer observed both adults together in the neighborhood of the nest until April 4. After that he saw only one and upon all occasions the tail of the other projected over the nest edge until after May 4 when he again saw both adults away from the nest. He assumes that during the thirty day interval the eggs were undergoing incubation. Judging from the size of the young his calculations that they hatched on May 4 are probably correct.

The young spent their time sprawled in awkward positions or peering over the nest edge. At times they sat back on their haunches quite erect, resting upon their pods and heels with feet straight out before them, with only the knuckles of their partly-closed toes touching the nest. For a time the youngest lay with its head hanging limply over the nest edge and I thought it dead. A slight noise below brought it to attention and its awakening was accompanied by a tiny call which sounded exactly like the deflating of a toy balloon whistle. Since the completion of the blind at noon, the adult female only had appeared in the neighborhood of the nest and her alarm call or "battle-cry" as we chose to call it, was the only vocal note uttered up to that time. It could be described as an up-scale slurring of two notes resembling the word "gyp" with the accent on the last syllable and repeated in rapid succession.

At 4:40 P. M. the female suddenly appeared very close to the nest, called excitedly and dove at the blind but did not strike it. This demonstration brought the three larger young to their feet. Even with the aid of their wings, which they used as crutches, they had difficulty in maintaining their balance, and one or the other frequently toppled over. They pecked at each others' bills as if hungry. At 5:00 P. M. the call of the female changed to a clear, short down-scale note, slurred as from "do" to "la" and had an impatient appealing quality to it; it was uttered at intervals of one second. It later became apparent that this call, given by the female when on guard near the nest, was an appeal to her mate for food. A Blue Jay uttered its usual call at the same time and but for the slightly higher pitch of the Jay, the resemblance was indeed striking. To an inexperienced ear, the call of the Goshawk could probably be confused with the "te'ur" of the Red-shouldered Hawk. The young, which were probably hungry, all

faced the source of the call expectantly and answered in almost the same pitch and tone but with much less volume.

At 6:00 P. M. we descended from the blind and returned to Birchwood for the night. Up to that time neither adult had appeared at the nest. At 10:00 P. M. a terrific downpour of rain and hail caused us to spend an anxious night, lest the old birds, having been frightened by the blind, might not have returned and the young might perish from exposure.

On May 18 we were at the blind at 8:30 A. M. and, to our great joy and relief, the old bird left the nest at our approach and the bobbing of downy heads over the nest rim gave evidence that all was well.

Immediately after my companions left, both birds called. A White-breasted Nuthatch in a business like manner inspected the nesting limbs, unmindful of the young or old birds only a short distance away.

At 10:30 the female adult appeared without warning. Her back faced the blind as she quietly inspected the young. The latter made little fuss and judging from their bulging crops, had evidently been fed at an earlier hour. Photography was almost forgotten in contemplation of her broad, powerful shoulders and general beauty of form. A slight noise brought her head directly over her shoulder with a lightning-like motion and a fierce unblinking reddish eye gazed steadily at the peep-hole in the blind for fully a minute. Being out-stared by the large, unblinking camera lense, she faced the blind defiantly, uttered her alarm call and held her ground in spite of the noise of the camera. Upon this occasion no food was delivered to the nest and after leaving she called continually from one point.

Her call was answered by the mate in a slightly higher pitch.

At 10:45 intense activity of the young heralded the arrival of the old female. She brought the hind-quarters of a red squirrel, which was held firmly in her left foot. In a very business-like and rapid manner she vigorously tore away bits of flesh and served them to the young one at a time. The feeding was accompanied by considerable vocal activity of the young. While they were thus occupied, the old female would take an occasional hurried mouthful. So engrossed was she in this occupation that no attention was paid to lens adjustments made with the hands in plain sight. The male flew closely overhead excitedly but did not appear at the nest. Finally, the female departed taking the remaining food with her.

The young watched passing birds with intense interest and at all slight sounds on the ground they would peer steadily over the nest edge. Today the tiny tail-feathers are peeping through the down of the largest young.

By this time it became quite apparent that when away from the nest the female did most of her calling from one spot at a distance of about 100 yards. She was observed to have a regular perch about twenty feet above ground in a small tree, from which point of vantage she had an almost un-



obstructed view of the forest floor. No human could approach without being observed.

At 2:40 the female came to the nest without food, inspected the young and called at intervals. The bold Nuthatch went about his business less than four feet away from the calling bird. It was 4:25 and since 2:50 P. M. neither adult had been at the nest. This was evidently a quiet time of the day for the birds. At 5:00 P. M. they were left to themselves.

We decided to return to Milwaukee with plans made to come back on a later date.

On May 26, accompanied by Mr. Warren Dettmann of the museum staff, we returned to the nest site. Although the sun was low at 4:00 P. M. we decided to try for some more pictures. The bird was undemonstrative and precautions on our part were foolishly cast aside. I had climbed half way to the blind when excited "look outs" were called from the ground but came too late. A fist thrust out to divert the aim of the adult female was dodged deftly by a mere flip of a wing and she struck a blow that made my senses reel. It felt like a crack across the head with a heavy whip. Fortunately she did not return to the attack. Upon all other occasions she struck for the shoulders or back. Considerable pain and bleeding made a rapid descent advisable. Inspection disclosed eight deep scalp wounds, one of them just above the right temple and dangerously close to the eye. She had evidently taken hold with both feet as she struck and dragged her hind claws about four inches. From that time on, all ascents into either tree were made with the head well protected by heavy burlap or a sheepskin-lined leather helmet. When a turban-like affair made of loose burlap was used, she struck more lightly and seemed to sense the danger of entangling her claws in the loose-meshed cloth. The helmet she struck with full force. Little wonder that a victim has small chance when once caught by such talons. Work was abandoned for the day.

On May 27 we found that the young had grown considerably and the dark shoulder tracts gave them a mottled appearance. The nest had recently been decorated with some green maple sprigs. At 9:50 the male bird glided past at a point below the blind, just skimming the forest floor. The female, which had been perching close by, went down and they met in the air but whether or not food was transferred on the wing could not be seen. The speed with which they can fly through such dense foliage is nothing short of remarkable. When viewed from above, the pure white under-tail coverts can be distinctly seen, giving the appearance of two white outer tail feathers of half length.

The female dove at the blind several times and alighted in the nesting tree and other trees close by but did not come to the nest. Since our arrival neither adult came to the nest, and the young lay perfectly flat and quiet.

At noon we absented ourselves and upon returning at two o'clock found the young squabbling over the bones of the hind leg of a rabbit, upon which one of them nearly choked before finally getting it down. Judging from the few appearances at the nest while under observation, the feeding is done during the early and late hours.

This morning (May 28) at daylight Mr. De Jung concealed himself at a point of vantage and kept the birds under observation until we arrived. Very early one of the adults brought what he thought to be a red squirrel to the nest but that was all. From that time until 12 o'clock there was no activity. The sudden, sharp whistling of the young made known the nearness of the adult female. She answered with three short calls and appeared at the nest carrying a small twig in her beak. Upon leaving, she flew straight at the blind and "zoomed" up and away. When an adult flew by, its movements could be traced by the eager following look of the youngsters, which at such times invariably whistled expectantly. They did not excrete as frequently as when younger.

It was 2:30; no food had been delivered to the nest since early morning and the young showed evidence of hunger. The adult female left her customary perch and flew down the woods, uttering her "battle cry." The nestlings seemed to sense alarm as they did not answer. Frequently they answered her alarm call perfectly.

During the past few days the weather was extremely warm and work in the blind for more than a few hours at a time was unbearable. On May 29 it was excessively hot at 3:00 o'clock. The old bird peered at us over the edge of the nest where with outstretched wings she was shading the young. She refused to budge while the ascent was made to the blind and our final photographic work was done, as it was necessary that we return to Milwaukee.

The next day the blind was removed and the return of this pair next year will be eagerly awaited at which time we hope to start work during the period of incubation and follow through the entire nest history.

In a letter Mr. Zirr informed me that on June 15 all the young were perched in the limbs above the nest and on June 18 they had moved to the nearby trees and remained in the immediate neighborhood of the nest until June 24.

*Milwaukee Public Museum.*

## FURTHER REMARKS ON THE RELATIONSHIPS OF THE GRACKLES OF THE SUBGENUS QUISCALUS.

BY FRANK M. CHAPMAN.

In the 'Bulletin of the American Museum of Natural History' for 1892 (Vol. IV, pp 1-20) I published a "Preliminary Study" of the relationships of the Bronzed, Purple and Florida Grackles. It showed that the Bronzed Grackle breeds from the Rio Grande Valley west to the Rocky Mountains, north to Great Slave Lake and Newfoundland, east to Connecticut and the Alleghanies; that the Florida Grackle ranged from Florida north to South Carolina and west to Louisiana, while the Purple Grackle occupied the area intervening between the ranges of the Bronzed and Florida birds.

It was also shown that throughout its vast range, the Bronzed Grackle varied significantly in color only when it came in contact with the Purple Grackle with which it then completely intergraded. This intergradation was proven, by breeding specimens, to occur from Massachusetts to Pennsylvania but it was believed that it would take place wherever the breeding ranges of the two birds came together. The Florida Grackle, at least in peninsular Florida and north to Charleston, was shown also to be constant in color but the Purple Grackle was found to be so variable that it was described under three phases of color, (1) the bottle-green, (2) the bronze purple, (3) the brassy bluish-green.

In my original paper I expressed a belief that the Bronzed Grackle is a species which intergrades with the Purple Grackle by hybridization, the hybrid being phase No. 3 of the latter; while the Florida Grackle was considered the highest development of phase No. 1 of the Purple Grackle. Further studies confirm my belief in the specific standing of *æneus* and of its hybridization with the Purple Grackle, which I now find is accomplished in Louisiana, just as it is in the northern states, through phase No. 3 of the Purple Grackle. But instead of considering the Florida Grackle an offshoot of the Purple Grackle, I now take the opposite view and believe that the Florida bird is the ancestral form. This view is the logical outcome of a theory which introduces the climatic influences exerted by the last Glacial Period as fundamental factors in creating the conditions we observe to-day.

It seems clear that, in order to hybridize, the ranges of the forms concerned must come together, and it seems equally clear that, in order to come together, they must previously have been apart. Whether, as my colleague Mr. J. T. Zimmer suggests, the ranges of the Bronzed and Purple Grackles may have been continuous prior to the last Glacial Period, there is certainly ground for the theory that during the height of this Period their ranges were disconnected. To the climatic influences of this time Dr. J. A. Allen was

wont to attribute the presence in Florida, as isolated representatives of western species, the Florida Jay (*Aphelocoma coerulescens*), the Florida Burrowing Owl (*Speotyto cunicularia floridana*) and other species of apparent western origin. To this same factor I have attributed the existence in the West Indies, as resident species, of the White-winged Crossbill (*Loxia leucoptera megaplaga*) and other birds of obvious northern origin. Certainly the presence during this Period of walrus on the South Carolina coast and of musk oxen in Kentucky is in itself sufficient indication of the character of the then prevailing climate.

If we can accept this view as a starting point, we may, in imagination, follow the post-glacial dispersal of Grackles northward until we find the situation of to-day.

For reasons which were doubtless climatic and promoted rapid range extension, the Bronzed Grackle not alone acquired a far wider range than the northern representative of the Florida Grackle, but progressed more rapidly, spreading eastward through New York and reaching central New England in time to prevent the representative of the Florida Grackle from advancing beyond Massachusetts. Eventually it reached Newfoundland at the northeast and Great Slave Lake at the northwest, while still retaining its residence in southern Texas. This vast territory, I repeat, has been occupied as a breeding range without appreciable exhibition of geographic or climatic variation.

The Florida Grackle, on the other hand, as it extended its range northward in the Atlantic States and westward in the Gulf States, very gradually underwent what appears to be geographic variation, though it may be the cumulative result of prolonged hybridism. Westward, in the vicinity of New Orleans, it is still present but intergrades completely with phase No. 2 of the Purple Grackle, its apparent geographic representative. Farther westward, on Avery Island and vicinity, true Florida Grackles have almost entirely disappeared (one male in 32 breeding birds) and the Purple Grackle, phase No. 2, with intergrades between it and the Florida Grackle, is the prevailing form.

Northward the Florida Grackle ranges unchanged, at least to Charleston, S. C., but specimens from Newport News, Virginia, as remarked beyond, show an approach to phase No. 2 of the Purple Grackle.

In my early paper the further development of phase No. 2, and its mergence with phase No. 3, is traced while the development of the latter as an apparent hybrid between phase No. 2 and the Bronzed Grackle in southern New England, Long Island, the Hudson valley and eastern Pennsylvania is shown.

Subsequently received material now demonstrates the intergradation of these two birds in the same way in southern Louisiana, as described beyond.



A report of this and other 'new' material is given here as a report of progress and to arouse interest in a problem which calls for much additional material and particularly field work. Specimens and observations from any breeding colony of Grackles between the ranges of the Florida and Bronzed Grackles are desirable. Existing conditions are evidently the cumulative result of the countless generations of Grackles that have appeared since these two birds first came together. In the north the area of intergradation is comparatively wide; in Louisiana, as we shall see, it is comparatively narrow. In Tennessee, the Purple Grackle, phase No. 2, breeds west of the Alleghanies; in Pennsylvania, the influence of *æneus* extends east of the Alleghanies.

The student lacking representative series of specimens may, perhaps, be better prepared to observe if he is briefly informed of the features characterizing the Bronzed and Florida Grackles and the intergrade between them which we call the "Purple Grackle."

	FLORIDA GRACKLE.	BRONZED GRACKLE.
Head, neck and chest.	Shining dark violet, more or less bluish anteriorly and bronzy posteriorly.	Shining greenish to purplish blue, rarely bluish violet.
Back.	Bottle-green, the feathers with a usually concealed iridescent bar at the base of the bottle-green end.	Uniform brassy bronze to olive-bronze, no iridescent or other markings.
Rump.	Purplish or violet, more or less washed with bronzy and with rounded iridescent spots near or at the ends of some feathers.	Like back.
Tail.	Greenish or bluish black.	Purplish black.
Wings.	Primaries blackish green; inner quills largely purplish violet, more pronounced on coverts; the lesser (rarely median) usually with iridescent tips.	Primaries black, inner quills violet, bronze-tinged, more pronounced on coverts; no iridescent markings.
Center of abdomen.	Bluish, purplish or violet.	Slightly duller than sides.
Bill.	Comparatively slender; depth at nostril, .42 inches.	Comparatively stout; depth at nostril, .46 inches.

The connecting links between these two species, as I believe them to be, form the (1) bottle-green, (2) the purple-bronze, and (3) the brassy-green phases of the Purple Grackle.

The characters of these three color phases have been described in my original paper, to which students should refer. Here I repeat briefly that phase No. 1 resembles the Florida Grackle but has the head, neck and chest greenish or purplish blue instead of dark violet. It occurs rarely as far north as Chester County, Pennsylvania (2 specimens out of 61) and as far west as southern Louisiana. It is associated with phase No. 2 and is either a geographic intergrade between it and the Florida Grackle or represents, atavistically, the former's relationship to the Florida Grackle.

It should be noted that in my 1892 paper I ranked the Florida Grackle as phase No. 1 of the Purple Grackle, whereas now it stands alone, and under phase No. 1 I include only those representatives of the Florida bird possessing a greenish or bluish head or which otherwise approach phase No. 2.

In phase No. 2 the head varies from greenish to purplish blue and rarely violet, the back and sides are bronzy purple with more or less concealed iridescent bars, the rump is purplish bronze, sometimes with bluish spots. The breeding range of this phase lies between the breeding ranges of the Florida Grackle and phase No. 3 of the Purple Grackle, from Louisiana to New York City and occasionally farther east and north.

Phase No. 3 has the head variable, as in No. 2, the back and sides brassy-green, and the rump bronze, as in the Bronzed Grackle. It is evidently a hybrid between the Bronzed Grackle and phase No. 2 of the Purple Grackle and breeds in the area between the breeding ranges of these two birds wherever they come in contact, from Massachusetts to Louisiana.

This is a very brief statement of conditions which began to develop when, with the retreat of the ice, the Bronzed and Florida Grackles first came together. But, in connection with my earlier paper, it may serve to state our problem and help prepare us to consider more recently acquired evidence.

#### NOMENCLATURE.

Seldom has a biological problem been more confused by nomenclatural issues than in the case of these grackles. With a hope that this phase of the subject might continue to be overlooked, I closed my eyes to it in preparing my original paper. But 'murder will out' and in 1918 (Auk, XXXV, p. 440) Mr. Arthur T. Wayne showed that as *quiscula* of Linnæus is based on Catesby's description of the bird from the South Carolina coastal region, which is referable to the Florida Grackle, *aglaüs* of Baird, the latter name is a synonym of *quiscula*, and the Florida bird becomes *Quiscalus quiscula quiscula* (Linn.), the name previously applied to the Purple Grackle.

A year later Dr. H. C. Oberholser (Auk, XXXVI, p. 549), in confirming Mr. Wayne's views, called attention to the fact that their adoption left the Purple Grackle without a name and he proposed to call it *Quiscalus quiscula*

*ridgwayi*. His type, from Washington, D. C., is, however, not a true Purple Grackle, of phase No. 2, which appears to be the characteristic breeding bird at Washington, but a typical specimen of phase No. 3 which, as I have tried to show, is a hybrid between phase No. 2 and *æneus*. It was taken March 30 about two weeks before Grackles are recorded as breeding in the District of Columbia (Cooke, Proc. Biol. Soc. Wash., 1929, p. 45), and may be a migrant on its way toward a locality where the Bronzed and Purple Grackles intergrade.

The case raises two questions: (1) can a name be properly based on a hybrid; (2) in any event is the name *ridgwayi* applicable to phase No. 2 of the Purple Grackle?

There is, however, a difference between sporadic hybridism, resulting in an occasional individual here and there, and that type of intergradation by hybridization which produces intergrades wherever the ranges of two forms adjoin. Certainly, for purposes of identification and the expression of relationships, it would make our use of names more exact and intelligible if we should retain the name *ridgwayi* for phase No. 3 of the Purple Grackle with a range from southern New England to Louisiana in the area between the ranges of the Bronzed Grackle and phase No. 2 of the Purple Grackle, while the latter, as apparently a geographic representative of the Florida Grackle, should receive a new name. In this event, I propose for this phase No. 2, as described above, the name *Quiscalus quiscula stonei*<sup>1</sup> with the type from Lakehurst, N. J. (No. 99687, Amer. Mus. Nat. Hist., June 8, 1907, W. DeW. Miller and J. P. Chapin) and a breeding range from southern Louisiana to southern New York in the area between the breeding ranges of the Florida Grackle (*Quiscalus quiscula quiscula*) and *Quiscalus quiscula ridgwayi*.

This procedure would still leave unsettled the proper scientific name of the Bronzed Grackle. The facts presented by its distribution and stability of characters throughout an exceptionally wide range argue for its specific distinctness, when custom would accord it the binomial *Quiscalus æneus*, just as we retain *Colaptes auratus* for the Yellow-shafted Flicker and *Colaptes cafer* for the Red-shafted Flicker, though the two are known to intergrade by hybridization.

With the Grackles, however, the intergradation is more regular and complete and is accomplished by a finely graded series of intermediates. Many of these intermediates are obviously far nearer to *æneus* than they are to *ridgwayi* and it would more nearly express their relationships to call them *Quiscalus quiscula æneus* than *Quiscalus quiscula ridgwayi*. In this event, to be consistent, we should defy custom and use the trinomial for the species, true *æneus*.

<sup>1</sup> For Dr. Witmer Stone.

As for common names, we may of course continue to use Florida Grackle and Bronzed Grackle as heretofore. Purple Grackle may also be still employed for the birds that connect them, but the component forms may be known respectively as Stone's Grackle and Ridgway's Grackle.

#### NEW MATERIAL.

It remains to examine certain specimens received since the publication of my paper which, in my opinion, throw important light on the relationships of these birds. They were collected chiefly in southern Louisiana and include a large series of breeding birds from Avery Island and vicinity presented by Mr. E. A. McIlhenny, and a smaller series from Baton Rouge Parish from Mr. Andrew Allison. In connection with these birds a series from Mandeville, on Lake Ponchartrain, previously reported on, calls for re-examination. These specimens, unfortunately, are without date. They were secured by C. S. Galbraith, a millinery collector, who for several years (about 1886-89) was resident at Mandeville in the spring and there rediscovered Bachman's Warbler (Auk, V, 1888, p. 323). The American Museum has specimens of this bird taken by Galbraith at Mandeville in March and April and it is wholly probable that the Grackles in question were procured by him during these months. This belief is confirmed by the identity of four males collected by George E. Beyer at New Orleans from March 23 to May 17. One of these birds is a typical Florida Grackle (*Quiscalus quiscula quiscula*), two are referable to phase No. 2 of the Purple Grackle (*Quiscalus quiscula stonei*) and one is intermediate.

Much the same conditions exist in the Mandeville series. Four are Florida Grackles with dark violet heads and bottle-green backs and sides. Six are referable to *stonei*, with purple-bronze backs and heads varying from bluish or greenish to bronze-purple. Six are variously intermediate and demonstrate the complete intergradation of *quiscula quiscula* with *stonei*.

The remaining two birds are typical Bronzed Grackles! The absence of specimens of phase No. 3 (*Quiscalus quiscula ridgwayi*), the brassy green bird resulting from a union of *æneus* with *stonei*, suggests that these two specimens were not local breeders while their rather dull plumage indicates that they were not winter visitants. Rather does it indicate that the breeding range of *æneus* is not far distant from Mandeville, and this belief is confirmed by six males from west Baton Rouge Parish on the east bank of the Mississippi River, approximately 65 miles west of Mandeville, taken from April 20 to May 20 and labelled by the collector, Andrew Allison, as "breeding." Three of these birds are referable to *ridgwayi*, one is *æneus* and two are intermediates, one of which, except for a narrow brassy green postnuchal band, is typical *æneus*. In other words, these six birds demonstrate the intergradation of the Bronzed and Purple Grackles through



the same color phase (No. 3) by which they merge wherever their ranges adjoin.

From west Baton Rouge Parish, Mr. Allison has also sent us two males taken March 5. They are labelled as "probably about to breed." One is typical of *stonei*, the other of *ridgwayi*, giving us, therefore, from one locality, birds typical of both parent forms (*stonei* and *æneus*) and of the results of their union.

Let us now continue westward along the Louisiana coastal region to Avery Island. It may at once be said that although the birds from this locality have uniformly been referred to the Florida Grackle, only one specimen in my series of 32 is typical of that species. The remaining 31 may be identified as follows: Avery Island, *stonei*, 9; intermediates between *stonei* and *quiscula quiscula*, 8; *ridgwayi*, 1; St. Landry Parish, *stonei*, 5; intermediates between *stonei* and *quiscula quiscula*, 3; Vermilion Parish, intermediates between *stonei* and *quiscula quiscula*, 3; St. Mary's Parish, intermediate, 1; Terre Bonne Parish, *stonei*, 1.

It will thus be seen that, so far as this series goes, the typical Florida Grackle has almost been replaced in the Avery Island region. The occurrence of a specimen of *ridgwayi* calls for comment. This bird was taken April 2 and probably indicates the proximity of breeding *æneus* either toward the north or west or very likely in both directions.

The average measurements of 16 specimens from the Avery Island region are, wing, 5.45; tail, 5.00; exposed culmen, 1.27; depth of bill at nostril, .48 in. The bill, therefore, is notably heavier than in the Florida bird which is characterized by a comparatively slender bill (24 east coast males, exposed culmen, 1.25; depth at nostril, .42 in; see also measurements in my 1892 paper, p. 6).

Before we leave the Gulf States, it will be well to examine again 9 breeding males sent me by the late Dr. W. C. Avery from Greensboro, Alabama, and vicinity. In their purplish bronze backs and sides, four of these birds agree with *stonei* but all have the violet head of the Florida bird. This, however, sometimes appears in northern specimens of *stonei* to which form I should refer these birds. The remaining 5 birds are intermediate between *stonei* and *quiscula quiscula* and demonstrate their intergradation. As a whole, therefore, the series agrees with that from Avery Island.

On the Atlantic coast it has been shown that the range of the Florida Grackle extends at least to Charleston, South Carolina. Five specimens collected by W. and H. H. Bailey in mid-May, 1895, at Newport News, Virginia, are very near the Florida Grackle. Three have the violet head of that bird but, in the color of the back and sides, approach *stonei*. Two have a violet head slightly tinged with bluish but the back and sides are greenish. In other words, these birds are intergrades between *quiscula*

*quiscula* and *stonei*, nearer the former. They can be matched in color by specimens from Avery Island, Louisiana. In measurements, they are close to the Florida bird, thus: wing, 5.41; tail, 4.89; exposed culmen, 1.24; depth of bill at nostril, .44 in.

The character of the variations shown by the specimens we have just considered from Virginia, Alabama and Louisiana is such as we are accustomed to find in geographic variants. On the other hand, it may be questioned whether we should expect to find a species of presumed Florida origin exhibiting essentially the same kind and degree of variation on the coasts of Louisiana and Virginia; and this causes us to ask whether the variations exhibited by these birds may be in whole or part the cumulative result of prolonged hybridism, which, in the course of innumerable generations has extended its influences from the boundaries of the range of *æneus* to well within the territory now occupied by the Purple Grackle. Personally, I favor the theory that *stonei* and its intergrades with *quiscula* are geographic variants, but the case is not proven.

While I present this paper merely as a report of progress, I hope that in connection with my publication of 1892, it will serve to state the problem and arouse interest in it. There is not a breeding colony of Grackles in the area between the breeding ranges of the Bronzed and Florida Grackles that cannot supply data of interest concerning the relations of these birds and the history of their intergradation. The laboratory worker using specimens with labels that do not state whether or not the birds were breeding may be misled by assuming that certain specimens were breeders when in truth they were migrants or stragglers. For example, in my 1892 paper I recorded as breeding males from Chester County, Pennsylvania (that is, specimens taken after April 15) the following: phase No. 1, 2; phase No. 2 (*stonei*), 15; intermediates between them, 11; phase No. 3 (*ridgwayi*), 19; intermediates between *stonei* and *ridgwayi*, 13; intermediates between *ridgwayi* and *æneus*, 1.

If these were all breeding birds, they indicate an amazing complexity of intergradation and suggest that physiographically the region is open to invasion from south, east and west. If they are not breeding birds, what are the factors that brought them together during the breeding season? Where is the nearest point at which *æneus* is the prevailing form? What are the intervening topographic conditions? Answers can be supplied only by the field-worker.

Specimens from eastern Tennessee (Washington Co., presented by B. P. Tyler and R. B. Lyle) are *stonei*, but specimens collected by A. F. Ganier in central and western Tennessee are *æneus* and in Tennessee the two species are unknown to intergrade. This circumstance is explained by Mr. Ganier of Nashville who writes that in eastern Tennessee the valley of the Tennessee

River and its tributaries is connected with Virginia, while central and western Tennessee belong in the Mississippi Valley. The two are separated by the Cumberland Plateau where Grackles are unknown to breed.

Thus again, a study of distribution, and hence relationships, calls for that intimate knowledge of local conditions which can be supplied only by the field-worker.

Here is the opportunity for the outdoor ornithologist. Some specimens are of course essential; but the characters of the forms concerned are so obvious that after one has become familiar with them identifications of nesting birds may be made in the field. Let us hope that some day we may be able to plot the breeding localities of all the Grackles connecting the Bronzed and Florida species. The resulting map would make an invaluable contribution to our knowledge of the factors governing distribution and to the history of species-making.

*American Museum of Natural History,  
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A HAWK OF THE GENUS *LEUCOPTERNIS* NEW TO SCIENCE.BY HERBERT FRIEDMANN.<sup>1</sup>

Of all the species of the rather heterogeneous composite known as *Leucopternis*, perhaps the rarest one, at least in collections, and apparently also in life, is *L. princeps* Sclater. This Hawk, described from Costa Rica, is known only from Costa Rica, western Panama, and Ecuador. The chances are that it may occur in Colombia as well, but in spite of all the intensive collecting that has been done there, it has not yet been found in that country.

I have recently examined all the available material of this species in the collections of the U. S. National Museum, the American Museum of Natural History, the Museum of Comparative Zoology, the Carnegie Museum, and the Field Museum, a total of 4 males and 3 females, and 1 unsexed; in addition to these, Count Gyldenstolpe has very kindly sent me the measurements of a pair from Ecuador in the Royal Natural History Museum in Stockholm. The working data, then, are based on 5 males and 4 females, a small enough series it is true, but the largest one yet studied, considering the extreme rarity of the bird. I find that the Ecuadorean examples are consistently smaller than the typical Costa Rican ones. For the former I propose the name

*Leucopternis princeps zimmeri* subsp. nov.

*Type*: American Museum Nat. Hist., no. 178948, adult male, collected at San José de Sumaco, Ecuador.

*Subspecific Characters*: Similar to *L. p. princeps*, but smaller, as follows: males: wing 350–352 (351.5) as against 364–367 (365.3); tail 191 as against 210–223 (218); culmen from cere 29–30 (29.5) as against 29.5–31 (30.1) mm. in typical *princeps*; females: wing 351–358 (354.5) as against 380–388 (384); tail 201 as against 225; culmen from cere 30.5–33 (31.8) as against 32 mm. in typical *princeps*.

*Range*: Known only from Ecuador (Rio Cayapas; El Chiral; Guala; San José de Sumaco).

The range of typical *princeps* is thus restricted to Costa Rica (Tucurriqui, La Hondura, Cariblanco de Sarapiquí) and western Panama (Boquete Trail and Cebaco Island), in mountain forests at altitudes of 4000–5000 feet.

*Material examined*: *L. p. princeps*: Costa Rica, 2 males, 1 female; Panamá; 1 male, 1 female, 1 unsexed.

*L. p. zimmeri*: Ecuador, 2 males, 2 females.

The new form is named in honor of Mr. John T. Zimmer of the American Museum of Natural History to whom all students of Neotropical ornithology are indebted for his careful revisions of Peruvian birds.

U. S. National Museum,  
Washington, D. C.

<sup>1</sup> Published by Permission of the Secretary of the Smithsonian Institution.



## SOME ASPECTS OF THE SUBSPECIES QUESTION.

BY WITMER STONE.

WHEN Linnaeus devised his binomial system of nomenclature, a species no doubt seemed to him a very definite thing about which no one could have the least doubt; but ere long we find him marking certain forms with an "a" or "b," etc.—forms that seemed to be worthy of recognition by name but which in some way, did not seem to measure up to the others in the sharpness of their definition.

These were the forerunners of the subspecies, although earlier polynomial authors were not entirely ignorant of their existence!

Ever since then the problem of species *vs.* subspecies has been an attractive, if not always fruitful, one for discussion. It may seem foolish to take up the theme again but it possesses a lure that seems to challenge one's wits, and after all it may not be out of place once in a while to revive it to see if any progress has been made in its solution.

Furthermore to some of us it recalls the days when master minds at A. O. U. meetings waged wordy wars in the discussion of its pros and cons. How many of our members, I wonder, remember Dr. D. G. Elliot's eloquent presidential address on "The Inheritance of Acquired Characters," or have read the discussion in 'Science' for 1897, participated in by no less authorities than J. A. Allen, C. Hart Merriam and Theodore Roosevelt?

When these discussions were occupying our minds the geneticists had hardly begun *their* investigations into the origin of species and such everyday terms as chromosomes, hormones, gametes and zygotes were unknown—and doubtless the word geneticist as well! Systematists concerned themselves wholly with the operation of external environmental factors in the formation of species and subspecies.

Since then, however, immense strides have been made in genetics and the study of the germ cell, with the result that a new light has been thrown on the species *vs.* subspecies problem and a new opportunity for difference of opinion opened up, splitting the geneticists and systematists wide apart, on a problem not even thought of when Drs. Allen and Merriam argued on the proper way to distinguish species and subspecies. To state the case briefly I cannot do better than quote the words of Dr. Percy R. Lowe and Mr. Macworth-Praed,<sup>2</sup> two ornithologists who embrace the theory of the geneticists. They say: Species and subspecies differ radically; species are mutational variants, presenting characters which are directly derived from the action of "factors resident in the germ plasm and which are therefore heritable."

<sup>1</sup> Read at the Fifty-second Stated Meeting of the A. O. U., Chicago, Oct. 24, 1934.

<sup>2</sup> *Ibis*, 1921, pp. 344-347.

"Subspecies are mere environmental, unstable, and essentially superficial variations which would quickly disappear if the organism were transferred from its normal environment to some other of a different nature."

The majority of systematic ornithologists, on the other hand, claim that species and subspecies are similar in origin and potentialities and differ only in that species are completely isolated from one another, while subspecies intergrade, and further that subspecies are incipient species; a species first disintegrating into several subspecies through various environmental influences and these eventually becoming distinct species through further differentiation or isolation.

Upon these rival claims we have recently received much light through the painstaking experiments of the eminent geneticist, Dr. Francis B. Sumner. His investigations, involving the rearing of many generations of several geographic subspecies of White-footed Mice transferred to environments different from those in which they occurred naturally, are familiar to us all. Briefly, he found "that the peculiarities of the geographic races or subspecies are wholly genetic and that the environment may have a well marked directive influence upon them [variations] is the belief of many students of distribution."

While Dr. Sumner's researches constitute one of the most important contributions to this subject and strongly support the stand of the systematist he does not solve the less important but more widely discussed problem of the difference between species and subspecies in actual practice. This was the topic involved in the Allen-Merriam-Roosevelt discussion, and the one with which systematists have been most concerned.

Dr. Merriam, summarizing the statements in the A. O. U. 'Code,' says:

"Forms *known* to intergrade, no matter how different, must be treated as subspecies and bear trinomial names; forms *not* known to intergrade, no matter how closely related, must be treated as full species and bear binomial names." Science, May 14, 1897, pp. 753-758.

He then states his proposal for what he regards as an improvement upon this plan:

"Forms which differ only slightly should rank as subspecies even if known *not* to intergrade, while forms which differ in definite, constant and easily recognized characters should rank as species even if *known* to intergrade." [Italics mine.]

In other words the old criterion of "intergradation" as the touchstone of trinomialism is changed to one of degree of difference, and Dr. Merriam adds that a knowledge of the degree of difference between related forms is infinitely more important than a knowledge of whether or not the intermediate links connecting such forms happen to be living or extinct.

It was the hope of those formulating the A. O. U. 'Code' that the criterion of intergradation would eliminate the personal equation from the question of which forms were species and which subspecies, but Dr. Merriam very truly points out that authors usually exercise their individual judgement as to the probable existence or non-existence of intergrades, thus introducing the personal equation it was hoped to avoid.

Dr. Allen, always the valiant defender of the 'Code,' was of the opinion that Dr. Merriam's proposal to use degree of difference as our criterion would enlarge to the widest possible extent the personal equation element.

The truth is that the personal equation figures in any plan that has been suggested and cannot be eliminated.

At the A. O. U. Meeting in Washington in 1902, the late Dr. Nelson presented a paper on the evolution of species and subspecies as illustrated by certain Mexican Quail and Squirrels and, as I recall it, he found it necessary to reduce several supposedly well marked species to subspecific rank. Dr. Merriam and the present writer on this occasion advocated allowing them to remain as species regardless of the intergrades that had been found; and after thirty years I am still of the same opinion.

Let us look at the facts in cases similar to this and at the character of, and variations presented by, both species and subspecies, using the term "form," as is usually done, to indicate either group.

We have some forms in a genus which are so different from one another that they have always been regarded as species; they may or may not occupy the same or overlapping territory during the breeding season. The Downy and Hairy Woodpeckers, for example, or the Song and Swamp Sparrows.

We have other forms with identical breeding ranges (to some extent at least) but which differ from one another very slightly and yet do not intergrade. These too have always been considered as species, as the Olive-backed and Gray-checked Thrushes; the Acadian, Least, and Alder Flycatchers. Then we have forms occupying different but usually contiguous breeding areas and intergrading in the strip lying between their ranges. These constitute the great majority of our subspecies.

Still other forms have completely separated ranges but their characters overlap in one or more details and these are also usually regarded as subspecies. They include (a) European and North American representatives of a wide-spread species; (b) island forms, which are representatives of close-by mainland species.

Now in the course of consistent application of the criterion of intergradation we are often forced through the acquisition of additional material to reduce many formerly respectable species to the rank of subspecies and in some cases we are confronted by a series of related forms which at one end

of their combined range react as species while at the other end they intergrade. Thus we have recently been forced to regard Woodhouse's Jay and the California Jay as subspecies though they do not intergrade and probably would not if their ranges were brought together, yet they are connected through a long line of Mexican forms.

So the status of many forms is constantly changing back and forth either through the accession of more material, or through the different mental attitude of the last reviser of the group.

Now let us consider what we actually do in deciding the status of a given form and how far we base our decision upon intergradation which we think is our criterion.

If it has a breeding range identical or partly identical with that of a more or less similar form we regard it as a species. If on the other hand its range is distinct but contiguous we either find intermediates or *infer* that they exist, and denote it as a subspecies. I venture to say that we infer in the vast majority of cases if the difference is slight. If it is more marked we hesitate to infer and often let it stand as a species awaiting more material. In other words degree of difference looms large in our decision. Have we not all commented at some time or other on a form as a "*mere* subspecies," obviously with the idea of degree of difference uppermost in our minds. And when we describe birds from foreign countries with only a few, or even one specimen available, do we not invariably judge of its specific or subspecific status on the basis of degree of difference? More than once I have heard the comment "Oh that is *very* different, that is a *species*." Evidently no question of intergradation came up there!

The proposed method of designating very distinct "so-called subspecies" as species, is of course a matter of arbitrary judgement, *i. e.* personal opinion. But so is our present method. In passing on the status of North American and European representatives of the same type of bird for the 'Check-List' there was every sort of variation of opinion expressed by members of the Committee and the results are neither consistent nor dependent upon intergradation.

In the case of island forms, as those off the coast of California, the decision as to whether an island form is worthy of a distinctive name of any sort is based upon the degree of difference, and so also in deciding whether a proposed new genus is to be accepted as distinct from an old one.

If we make use of the degree of difference criterion to such an extent, why not go a bit farther and recognize many well-marked subspecies, usually former species, as full species even though some intergrades do exist—and how are we to be sure just when the last intergrade becomes extinct?

We must realize that by no means all subspecies as at present recognized, are of the so-called "millimeter" variety, some of them are far more different



from one another than are many species, but the fact of intergradation compels us to regard them as subspecies.

The big Aleutian Song Sparrow is a subspecies according to our present criterion; the pale Seaside Sparrow of Cape Sable is a species; yet both, I have little doubt, are of almost, or quite, identical status from an evolutionary point of view.

Now what do we gain by substituting degree of difference for integradation in such cases? We are able, in the first place, to put the wide-spread criticism of subspecies squarely upon the category of subspecies against which it is really directed, and free a number of forms which are sufficiently different from their closest allies to be readily distinguished even in the field. We also make much clearer to those interested in general ornithology how many *kinds* of birds there are. For example a gentleman anxious to form a representative collection of North American birds recently told me that he did not desire *any* subspecies, having evidently formed his idea of subspecies from some of the races which can only be separated by experts with abundant material. When shown a Boat-tailed Grackle and an Aleutian Song Sparrow he said: "There must be some mistake, surely those are not subspecies!"

From a purely technical point of view it matters very little what rank any form may be given, since its identity and its individual name (either binomial or trinomial) are always preserved, but for the broad zoologist and the general body of ornithologists it is far more useful and practical to have the readily distinguishable forms of bird life in one category and the very closely related forms in another.

Many German writers, carrying out their idea of the "formenkreis" or evolutionary group, found it quite practical to associate species and subspecies in a single group without altering the names, just as we associate them in our genera, and after all our aim should be to try to find some way by which we may indicate phylogeny or genetic relationship without destroying the permanency of the name of the organism. The main trouble with our present system of nomenclature is that we try to give an object a name by which it may always be known and then continually change that name to indicate the evolution of the organism or its genetic relationship. In other words we try to use a name for two quite different purposes.

It has been argued against the arbitrary designation of certain forms as species when we know that they intergrade, that there will be a number of specimens which cannot be definitely relegated to one or the other but we have exactly the same situation in the case of subspecies where the intergrades cannot be referred definitely to either race.

Now let us look at another side of the question. It would seem that many ornithologists have already departed from the intergradation criterion

so that we are faced with two sorts of subspecies to the further confusion of systematic ornithology. This is attributable to the "Formenkreis" idea so popular in Germany and many writers in attempting to emphasize the genetic relationship of a group of forms, including both species and subspecies, make them all subspecies of a single species. The result is the exact reverse of the plan I have advocated and leads to the multiplication of subspecies and the reduction in the number of species. These writers have departed entirely from the idea of intergradation but have gone in the wrong direction!

Dr. Hellmayr in his admirable 'Birds of the Americas' (Part VII, p. 5) makes *Corvus caurinus* Baird from the northwest coast of North America, a subspecies of the Fish Crow (*C. ossifragus*) of the Atlantic coast of our southern states; the California Jay (*Aphelocoma californica*) a subspecies of the Florida Jay (*A. coerulescens*); and the San Lucas Robin (*Turdus confinis*) a subspecies of *T. migratorius*. There is no question of intergradation in any of these and his comment in the last case that *T. confinis*, is obviously "merely an excessively pale race of the Robin" seems to indicate that degree of difference *only* was in his mind.

A still more conspicuous example of this sort of thing is seen in Dr. B. Stegmann's recent review of the larger Gulls of the World<sup>1</sup> in which he reduces all of them to subspecies of five species; our Slaty-backed and Western Gulls (*Larus schistisagus* and *occidentalis*) being made subspecies of the Black-backed Gull (*L. marinus*), and the Iceland and California Gulls (*L. leucopterus* and *californicus*) of the Herring Gull (*L. argentatus*). Obviously there is no question of intergradation here and how such an arrangement could result on the basis of degree of difference it is hard to understand. If there were ever sufficient degree of difference to constitute a species, surely it is to be found in the case of these Gulls which Dr. Stegmann has joined together!

If the subspecies idea is to be carried to such an extreme, we had better return to Bowdler Sharpe's plan of designating every form of bird by a binomial (specific) name no matter how much or how little it differs from its nearest relatives, or in what manner.

As a matter of fact there is so much difference in the ideas of different writers as to what are subspecies and of which species a given form shall be regarded as a subspecies, that it is often difficult to know where to look for the race in which we may be interested, while the confusion created in the arrangement and labelling of museum collections and in indices to published journals is enormous.

Another aspect of the subspecies problem is seen in the attempt of certain authors to abandon the use of subspecies, more especially in papers based upon field identifications. It is claimed that where actual specimens are not

<sup>1</sup> Jour. für Ornith., July, 1934.

obtained it is impossible to be certain as to which race we may be studying, and that the use of the subspecific name of the race known to occur in the region is unscientific, therefore we should use only the specific or binomial name. The chief objection to this practice is that the binomial name has been used in so much of our literature to indicate the so-called typical form that it is very confusing to use it for some other race. For example, to record *Melospiza melodia* from the coast of British Columbia when the bird we have called *M. melodia* (more properly *M. melodia melodia*) is well known to be restricted to the Atlantic slope of the United States. A far better practice would be to write *Melospiza melodia* subsp., as is often done.

The practice, however, seems to be unnecessary unless it is known that several races are likely to occur in the region. It resolves itself into a question of our ability to identify a bird in the field. Many subspecies as already stated are as easy to identify in the field as are many species and we could just as logically say that we should not record any sight records of the Thrushes or small Flycatchers except by the generic name! When we know that a certain subspecies is the one occurring at a given locality there is a very slight chance that the individual we have seen there belongs to some other race. When an author uses only the binomial name of a bird in the heading of a note while in the text it develops that he has specimens and has made the necessary subspecific determination (and this has been done in some recent publications), he is creating trouble and annoyance for anyone who wishes to consult or quote his paper and is simply shirking his duty.

There is the same desire in some quarters to abolish English names for subspecies and to provide one for each specific group and the recent 'Check-List' has been blamed for failure in the latter case, the critics apparently overlooking the fact that no names for specific groups have ever been provided in *any* of the editions of the 'Check-List.' Furthermore if they were to try it they would realize the difficulties of the proposition!

Were the more distinct subspecies recognized as species and a check put upon the relegation of perfectly distinct species to the rank of subspecies such a plan might be feasible without too much violence to historic nomenclature, but it would seem undesirable and conducive of no possible benefit to abolish such time honored names as Boat-tailed Grackle, Red-breasted Sapsucker, Gambel's Sparrow, etc., not to mention California Gull, California Jay, Yellow-billed Magpie, etc., etc., simply because, for one reason or another, they are considered to be subspecies.

A writer in 'The Condor' (1934, p. 245) says that subspecies "belong to the serious student of systematics and animal distribution and in this type of research the scientific name is sufficient." In this we agree but we doubt if the collectors of eggs, who value the sets of rare subspecies at high figures,

would concur in this opinion, or would care to dispense with English names for them. They would have to learn a vast number of scientific names for the subspecies which they now know by the historic English names handed down for several generations. The same writer in commending Dr. Grinnell's note on revision of English bird names (Condor, 1934, p. 165) says, "descriptive or geographical names are far preferable to the present hodgepodge of meaningless personal names."

I very much doubt, however, whether anyone will profit by changing "Barlow's Chickadee" to "Santa Cruz Chestnut-backed Chickadee" or "Grinnell's Chickadee" to "Idaho White-browed Chickadee" as Dr. Grinnell has suggested. It is practically impossible to use such names on museum exhibition labels and before one could call his companion's attention to one of these birds in the field, by such a sesquipedalian name, the bird would probably have flown! More seriously, however, is it not just as important to perpetuate the names of our ornithologists in our bird names as to coin new geographic or descriptive terms? The former are not "meaningless" and really mean just as much if not more than the latter and may stimulate the "beginners" to ascertain who these men were and what they did. After all a name is a name and experience in every language shows that the shorter it is the better and the more likely to be used. This discussion of English names, however, is somewhat apart from my thesis and I would only add that inasmuch as our technical names must needs change so long as we try to make them express evolutionary relationships as well as to serve as a handle to let others know what we are talking about, then by all means let us maintain stability, so far as possible, in our English names and not coin any more new ones when our literature possesses such a large proportion that have been maintained for from fifty years to a century.

To summarize my main contentions regarding subspecies: I should advocate regarding as subspecies all geographic races differing but slightly from one another and whose ranges join (i. e. the majority of our subspecies of the A. O. U. Check-List); also island forms and representatives of European or Asiatic birds which differ very slightly from mainland, or Old World forms (these are for the most part now regarded as subspecies on the grounds of overlapping of characters although actual intergradation is manifestly impossible because of geographical isolation).

I should regard as species forms which differ markedly from one another; and other forms which differ only slightly but whose ranges are more or less identical with no crossing or intergradation, such as the smaller Thrushes and Flycatchers (such forms are now recognized as species); also very distinct subspecies even though intergrades are known to exist. I should strongly oppose the reduction of such distinct forms as the California Gull, Yellow-billed Magpie, Boat-tailed Grackle, California Jay, etc. etc., to subspecific rank on the ground of genetic relationship.



While I do not wish to appear iconoclastic, I believe that serious consideration should be given to the present status of the subspecies and the tendencies of the day in this connection, which seem to be more likely to produce chaos than system. Certainly no improvement or reform can be attempted in either technical or English nomenclature until we decide a little more definitely which forms are to be regarded as species and which as subspecies.

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A METHOD FOR THE INTENSIVE STUDY OF BIRD SONG.<sup>1</sup>

BY ALBERT R. BRAND.

*Plates V-VI.*

By photographing bird sound on motion picture film it is possible to bring bird song into the laboratory and study it intensively under the microscope. In sound photography several types of sound tracks are produced depending on which of several methods of photography is employed. In our work we use the Fox-Movietone method or one of the so-called variable density methods. A sound track one tenth of an inch wide running parallel to the length of the film is produced. The photographed sound appears as straight light and dark lines at right angles to the length of the track. Eighteen inches of film pass in front of the light gate of the sound camera each second. The distance between the light and dark lines determines the frequency of the sound. The closer together these vertical lines on the track are to each other the higher pitched is the sound. Hence the vertical lines on the sound track determine the character of the sound (Plate V, upper figure).

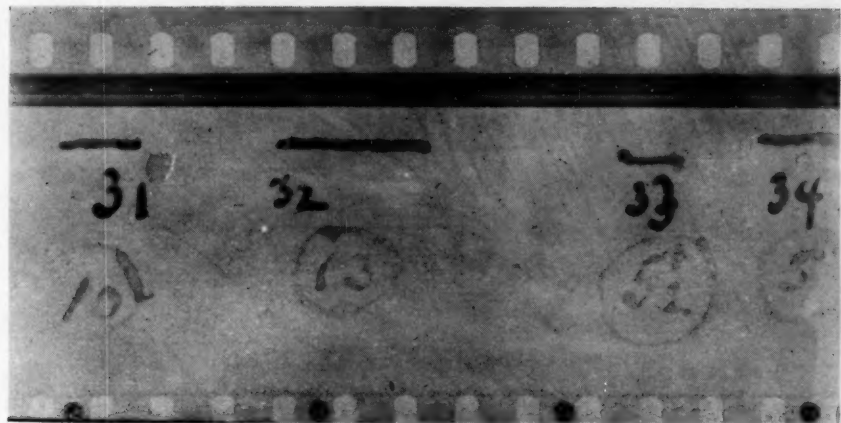
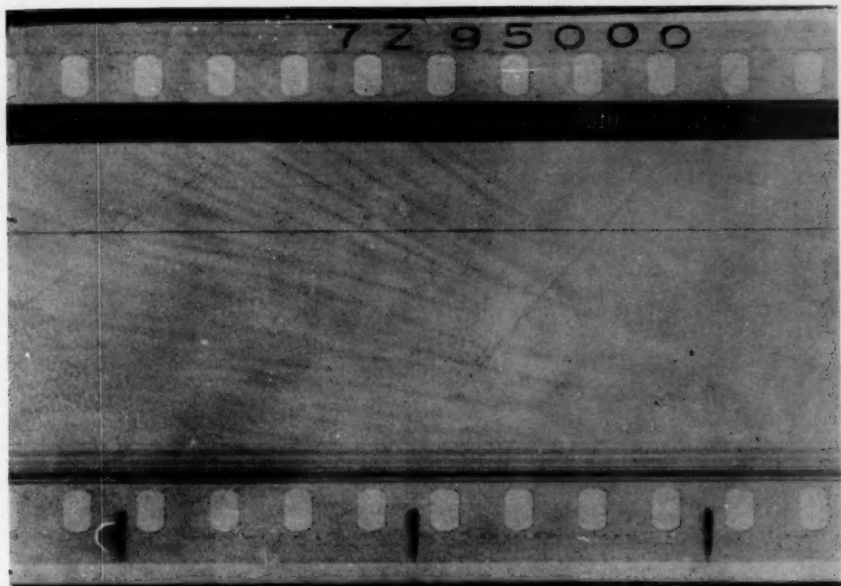
The sound track of the developed negative is carefully examined under a low power, usually  $\times 25$ . The microscope is fitted with an eye-piece micrometer; then by multiplying the number of lines on the track per eye-piece micrometer unit by the number of such units per eighteen inches of film, the number of lines (double vibrations or cycles) per second is arrived at.

The length of a song and the length of an individual note in a song can be accurately measured to the  $1/500$  of a second. The frequency of a note can be counted and calculated with far greater accuracy than can be done by even the most highly trained ear. Extremely short notes and those of very high pitch, often inaudible to the human ear, can be clearly seen and studied.

The margin of possible error in making recordings is negligible. The speed of the camera is regularly and carefully checked, while a variation in speed of more than 5% in either direction is detectable to the ear when the developed film is reproduced. Under the microscope the possible inaccuracy in counting is small, as in practically every song examined numerous counts are made of many similar notes, and a difference of even 100 or 200 cycles per second in five or ten thousand, in the count of a very high sound, such as bird song, does not materially change the results.

Plate V, lower figure, is a reproduction of a piece of worked over film three inches long. It is from the recording of a Song Sparrow's song, and is of

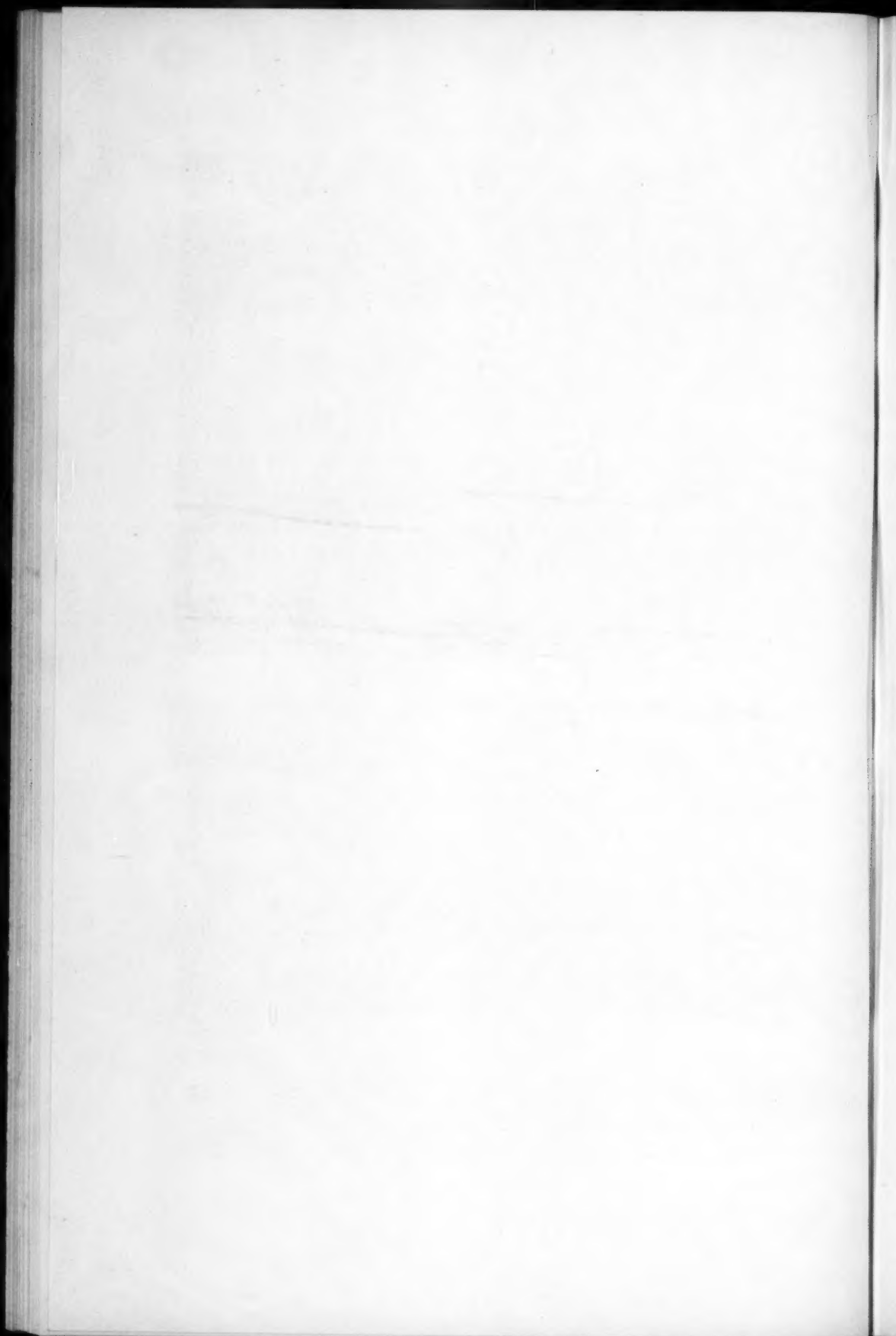
<sup>1</sup> Read at the Fifty-second Stated Meeting of the A. O. U., Chicago, Oct. 24, 1934.



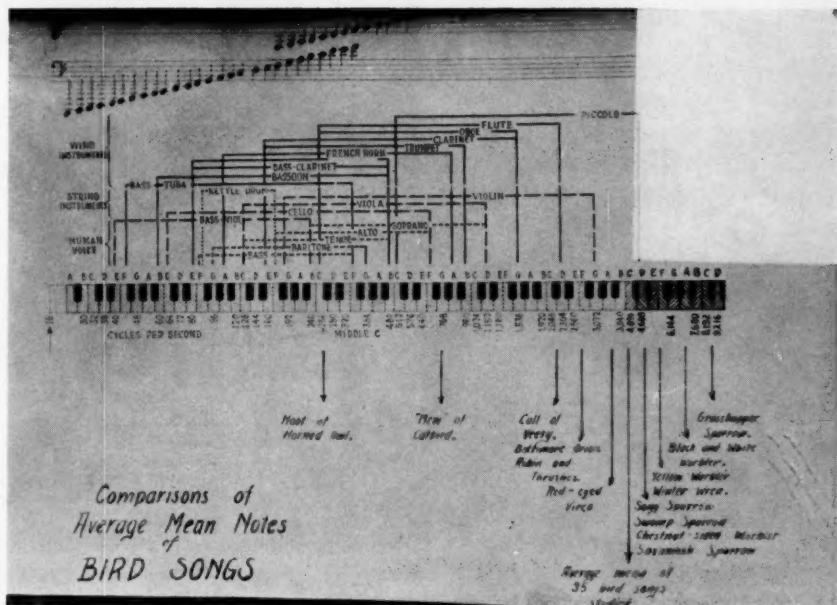
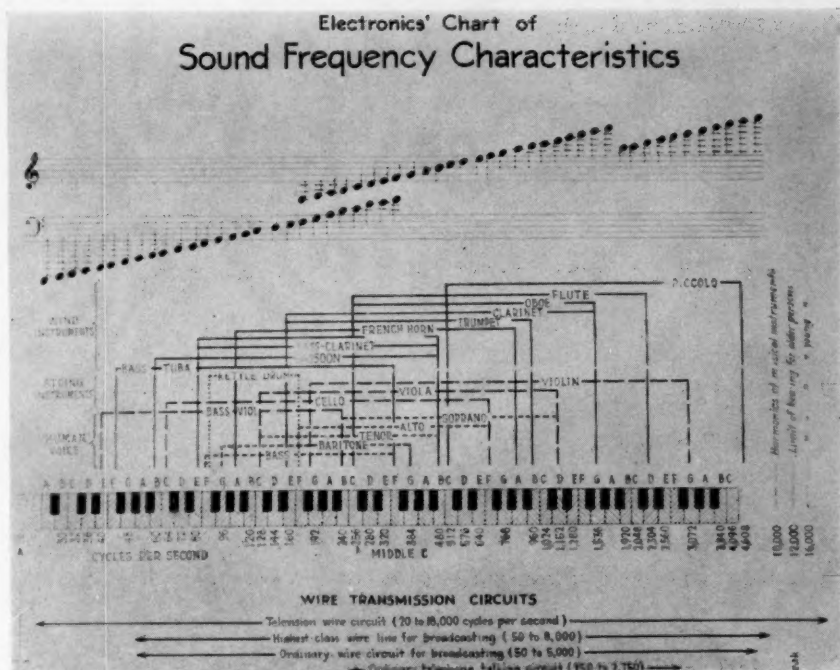
SOUND FILMS.

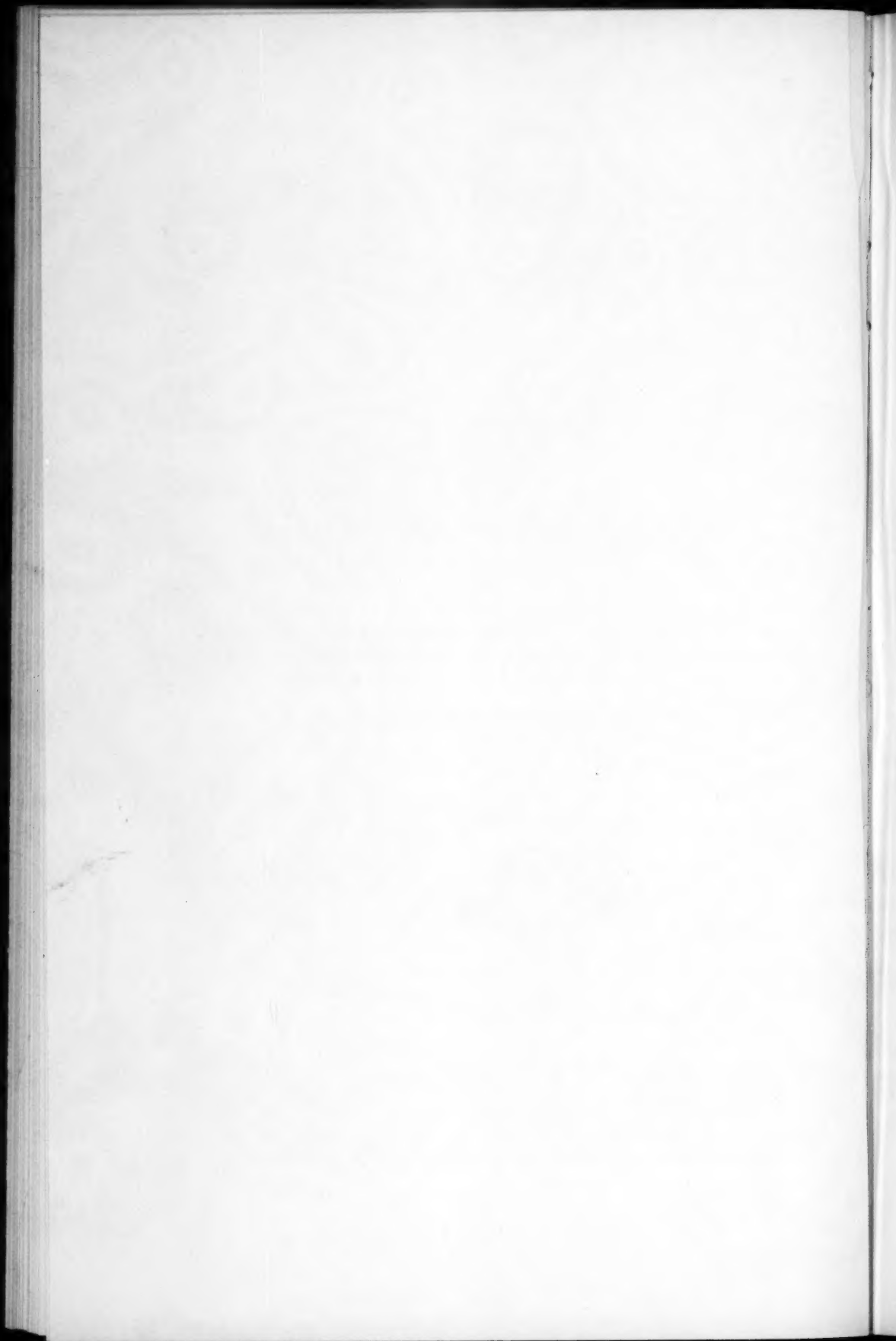
UPPER: NOTE VERTICAL LINES ON BLACK STRIPE SHOWING FREQUENCY OF SOUND AND INTERVALS.

LOWER: A STUDIED SONG SPARROW FILM.









about one sixth of a second duration. Four notes, numbers 31, 32, 33, and 34 of a song are shown. The film takes ink readily. The length of each note is indicated by the horizontal ink lines under the track. Below each line the note number is written; and the lighter numbers in the circles are the count of the number of lines (frequencies) per eye-piece unit. Thus note 31 was quite high, there being ten lines per eye-piece unit; note 32 was somewhat—about two notes—higher, while note 33 was about an octave lower than note 31; and note 34 was about a half note lower than the one that preceded it.

This small piece of film shows that in the very short space of one sixth of a second four distinct notes were produced with a range of considerably over an octave. It should be understood, however, that while these notes show on the film as three distinct notes, and they are such, it is impossible to hear them as such. They are delivered so quickly that to the human ear they appear as one note or even as a part of one note.

No attempt has been made as yet to study the overtones or harmonics of bird song. What are commonly called fundamentals, or what could be better described as the most accentuated tones or pitch determining frequencies, alone have been considered.

Musical tones are a composite of a highly accentuated tone and numerous overtones and so-called undertones. To be strictly accurate, tones consist of a fundamental—always the lowest tone produced—and numerous overtones or harmonics. However, quite frequently the fundamental and some of the lower harmonics are partially or almost fully suppressed, and a certain higher harmonic is heavily accentuated. Only comparatively recently has it been realized that this heavily accentuated tone is in actuality a harmonic and not a fundamental. This has led to certain confusion in terms. The heavily accentuated harmonic is often referred to as the fundamental, the lower suppressed tones, be they harmonics or actual fundamentals, have been called undertones. However, practically every tone has one factor, either fundamental or harmonic, which is much more greatly accentuated than all other components of the tone. It is this factor which determines the tone's pitch. In these studies I have considered primarily this highly accentuated factor. The less accentuated components are extremely interesting, and they determine what is known as the quality of a tone. They are extremely varied and numerous. I leave their study to the future.

While harmonics are present in many bird songs, there are many others in which I have been unable to detect even a trace of them. In fact bird song as a whole, when compared with human speech, instrumental music, etc., is remarkably free from harmonics. The reason can only be guessed at, but it is probably correlated with the excessively high pitch of these sounds. Possibly these high pitched sounds are normally lacking in over-

tones; what seems more probable is that there are overtones but they are so high as to be both inaudible to the human ear and unrecordable with our present equipment.

Our studies show that the individual notes in many bird songs are far more numerous than had been supposed.

TABLE I.  
NUMBER OF NOTES IN SONGS.

	Length in seconds	Number of notes in song	Number of notes sung per second
Winter Wren, Song I	7.17	113	16
Winter Wren, Song II	6.72	106	16
Goldfinch	2.43	22	9
Song Sparrow, Song I	2.33	35	15
Song Sparrow, Song II	2.08	36	17
Song Sparrow, Song III	2.48	36	15

Two songs of the Winter Wren studied under the microscope show that an average of sixteen distinct notes with a corresponding number of distinct stops were produced each second.

Compare this with Aretas A. Saunders' report in 'Bird Song' (New York State Museum Handbook 7; 1929, page 175). He graphs the song of a Winter Wren heard on the Mt. Marcy trail, July 25, 1925. His song is 7.20" long, practically the same length as my Song I; but he counts only five distinct notes compared with the 113 shown on my film. This should not lead to the conclusion that Mr. Saunders is an inaccurate observer. On the contrary my studies show him to be very remarkably accurate. It merely shows how far more accurate sound photography is than the human ear at its best.

In three film reproductions of the Song Sparrow's song studied, I found an average of about sixteen notes and corresponding stops per second. Mr. Saunders graphing a song of the same species, 2.80" long (The Auk, Vol. 33, 1915, page 175) found only nine notes or an average of a little more than three notes per second.

Many of the notes in the Song Sparrow's song and in the songs of many other species are of incredibly short duration; so short that they could not possibly be heard by the human ear except in combination with the preceding or following notes. About three quarters of them in my Song Sparrow song II being less than 1/50" long, and in my other Song Sparrow songs there are many notes that are short.

The silent intervals between notes are even shorter and in many instances are less than 1/200". Visualize a note 1/50" long succeeded in 1/200" by another note equally short, and you will realize what a very rapid thing



bird song is. Very short notes and very short intervals are present in many bird songs and I have found examples of this in the songs of the Winter Wren, House Wren, Field Sparrow, Goldfinch and many other birds.

Naturally a silent space of as short a duration as  $1/50''$  is not perceptible to the human ear as such. Hence what often sounds like a continuous note is really a group of rapidly delivered notes. Sometimes this appears orally as a trill, as is probably the case in the song of the Winter Wren; in other cases, however, it is heard as one note. Trills, incidentally, can be caused in several ways, I believe.

After the film has been studied under the microscope, and the number of notes, the length of the notes and the stops, and the various frequencies have been tabulated, it is possible to graph the curve of a song.

Two methods of plotting have been used. For short songs, or songs with comparatively few notes, the pitches of the notes are plotted along the ordinate or vertical direction. Thus the higher the note the nearer the top of the paper is the plotting. The abscissa or horizontal direction shows the length of the notes and the stops.

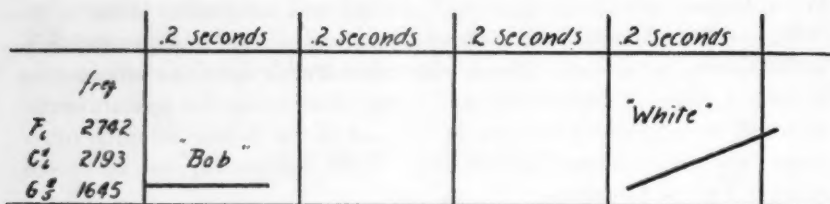
When plotting songs with many notes I ordinarily plot only the pitch of the notes, the horizontal direction then represents only the sequence of notes. This is done for practical reasons; the size of the graph would otherwise become unwieldy and inconvenient to work with.

An interesting phenomenon noted in these studies is the way in which pitch changes within the note itself. Many songs show this characteristic, as is well illustrated by the graphs of the common Bob-white call and that of the Eastern Meadowlark's song. It is also shown in exaggerated form in the graph of a few notes of the song of the Goldfinch (Figs. 1-3).

In the Bob-white call the 'white' note ends almost an octave higher than it begins. This call is among the lowest pitched of any sounds found in these studies. Thus the first note of 1919 cycles is only about two notes higher than the highest note that a very high soprano reaches. The second note is interesting in that it is not on any definite pitch, but is an upward slur: in about one fifth of a second the pitch varies from a low of A to the F # above it, or about six full notes.

In the example of one of the many variations of the song of the Eastern Meadowlark, notes I and III start at a higher pitch than they end. In the language of the musician this bird has a tendency to flat. In Note III the pitch is almost constantly changing. This note took about .6'' to be delivered. In that short space of time at least seven different frequencies were observed, and the note had a range of almost a complete octave. It starts at almost the high of the song, reaches the absolute high very quickly, drops about a full note, then over two, then about a note at a time, ending on the lowest pitch of the song. In other words in Note III both the highest and

## Quail



Graph of "Bob White" call of Quail

Fig. 1.

## Meadowlark

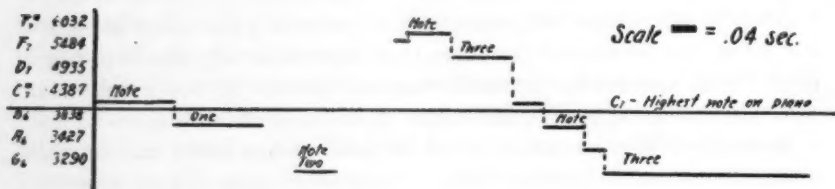
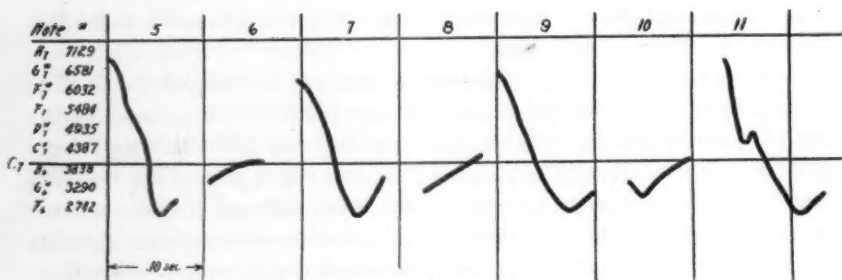
Graph of Eastern Meadowlark's song drawn to scale  
Variables: pitch and length of notes and intervals

Fig. 2.

## Goldfinch



Notes from Goldfinch song

Fig. 3.

the lowest pitches in the song occur. Notes with this constantly changing quality are quite common in bird song, and probably are the reason why it is so difficult to say accurately what pitch a note has from field observations.

The graphs of the Bob-white and the Meadowlark, though produced mechanically, give a very good indication of what we should imagine the picture of the songs of these birds should look like. This is often the case with these mechanically constructed graphs but there are notable exceptions.

The graph of some of the notes from the song of a Goldfinch illustrates the excessive variations in the individual notes. (These notes are of the mating song and not the commoner call so often heard in winter.) The song has a very definite pattern according to the graph, every second note being similar to the second previous one. The odd series, numbers 5, 7, 9, etc. starts high, drops over an octave, and ends a little higher than the absolute low. The even series starts about a note under the highest note on the piano, and ends slightly higher than the last note on the keyboard. None of the silent spaces on the graph is over  $1/25''$  long. The notes are between .06'' and .1'' in length.

There are often great differences in volume in the various components of a song, but I have not shown this on the graphs as this factor is a matter of degree, and it is very difficult to measure accurately. However, it is quite apparent on the film, and shows up as varying density of the photographed vibrations. Quite frequently one note will be very heavily modulated,—we should probably say "over-exposed" in a picture,—the next will be much under-exposed; so light, in fact, that the lines are all but uncountable. These undermodulated areas are quite as common among low frequency notes as among high ones. This phenomenon, the rapidity of change in modulation of bird song, is one of the most distressing troubles of the sound recorder. Songs that have it very markedly are extremely difficult to record accurately, for if the exposure is correct for one part of the song it is not so for another. As notes with widely different modulation follow each other in very quick succession, often in less than  $1/100''$ , it is obviously impossible to change exposures during the song.

Plate VIa shows the range of the piano and the relative pitches of the various musical instruments and human singing voices. I include this chart in order to make it clearer where bird song is pitched and what the range of frequencies is. We must bear in mind that the range of one octave doubles the number of cycles per second of the sound. Thus if middle C on the piano is 256 cycles, the C an octave higher is just double, or 512 cycles. The highest note on the piano is, according to this chart, 4,096 cycles or C<sub>7</sub>. We have found bird notes as high as 8,000 or 9,000 cycles, or more than an octave above the highest note on the piano.

4/38

(1939:38)

Plate VIIb shows the piano scale and the various instruments and voices in direct comparison with the range of bird song. The highest soprano note of the human voice, variously estimated as between 1,200 and 1,500 cycles, is over two and a half octaves below the highest note of a bird, as found in these studies, and an octave and a half, at least, below the average of the thirty-five species studied. Few bird songs, even the alto sounding ones such as the Thrushes, go as low as the highest note of a high soprano. Bird song is much higher than the violin, flute or piccolo. In order to include the range of bird song in this chart, notes beyond the range of the piano had to be added. The eight, heavily shaded, notes on the extreme right are above the keyboard. It is in this octave that most of the higher pitched bird songs occur. Only two of the bird sounds studied are within the range of the human singing voice. Thus the Horned Owl is about the center of the baritone range, and the Catbird's *mew* falls just above the contralto's high and about the middle of the soprano's range. The call of the Veery, and the bell-like songs of the Thrushes are all above the human register; in fact they are pitched about the high of the violin.

As these studies were made with the purpose of finding out how high birds sing, it might be interesting to look at a few figures of the thirty-five songs studied. The songs were taken at random, and are not a specially picked group. The studies were made from sound films of the following birds: Bob-white, Killdeer, Northern Flicker, Phoebe, Alder Flycatcher, Black-capped Chickadee, House, Winter and Long-billed Marsh Wrens, Catbird, Robin, Wood and Hermit Thrushes, Veery, Starling, White-eyed, Yellow-throated and Red-eyed Vireos, Black and White, Yellow and Chestnut-sided Warblers, Ovenbird, Louisiana Water-Thrush, Yellow-breasted Chat, Hooded Warbler, Eastern Meadowlark, Red-winged Blackbird, Baltimore Oriole, Cardinal, Goldfinch, Savannah, Grasshopper, Field, Swamp and Song Sparrows.

TABLE II.

## RÉSUMÉ OF HIGH FREQUENCIES IN 35 BIRD SONGS.

*Highest note:* Grasshopper Sparrow; 9,141 cycles or  $D_8$ , over an octave higher than the highest note on the piano.

Six other songs with notes between 8,000 and 9,000 cycles.

Four " " " " " 7,000 and 8,000 cycles.

Twenty-seven songs with notes higher than  $C_7$ , 4,138 cycles, which is the highest note on the piano.

Five songs were within a note of  $C_7$ .

All but three of the songs contained notes as high as the next to highest note on the piano.

These statistics merely show the highest notes or pitches found in the studies. Quite frequently one or two very high notes will be found in a

song, the remaining notes being more moderately pitched. The figures show, however, that a great majority of the bird songs studied are higher in range than the piano, and practically all but a very few go to within a note of that level.

However, while a song may contain an excessively high frequency or two, its average pitch is the one I would now like to consider. The highest pitches are very interesting, but quite frequently these notes are of such short duration that they could not possibly be distinguished as separate notes by the human ear. The average note, however, is the one, very probably, that determines the audible pitch of a song. I have tried, from my tables of the charts and graphs of the songs, to approximate this average note of each song.

In several songs, notably the Starling, Chat and Catbird, it has been impractical to do this because of their excessive variations. These birds sing all over the map, so to speak. In most bird song, however, an approximation can be arrived at. These figures are not exact; but they are correct to within possibly three or four hundred cycles. At the range of bird song, in these very high frequencies, that difference is not important.

TABLE III.  
HIGH FREQUENCIES FOUND IN BIRD SONGS STUDIED.  
(C<sub>7</sub> = HIGHEST NOTE ON PIANO 4,138 CYCLES.)

	Highest note in song	Lowest note in song	Approx. ave. pitch of song
Grasshopper Sparrow	9,141 (D <sub>8</sub> )	7,678 (B <sub>7</sub> )	8,400 (C <sub>8</sub> )
Winter Wren	8,775	3,290	6,000
Yellow Warbler	8,775	3,469	5,900
Chestnut-sided Warbler	8,775	3,108	5,000
Black and White Warbler	8,043	5,302	6,900
Savannah Sparrow	8,775	3,290	5,000
Starling	8,226	1,096	—
Song Sparrow	7,678	2,742	5,000
Swamp Sparrow	7,495	3,437	5,000

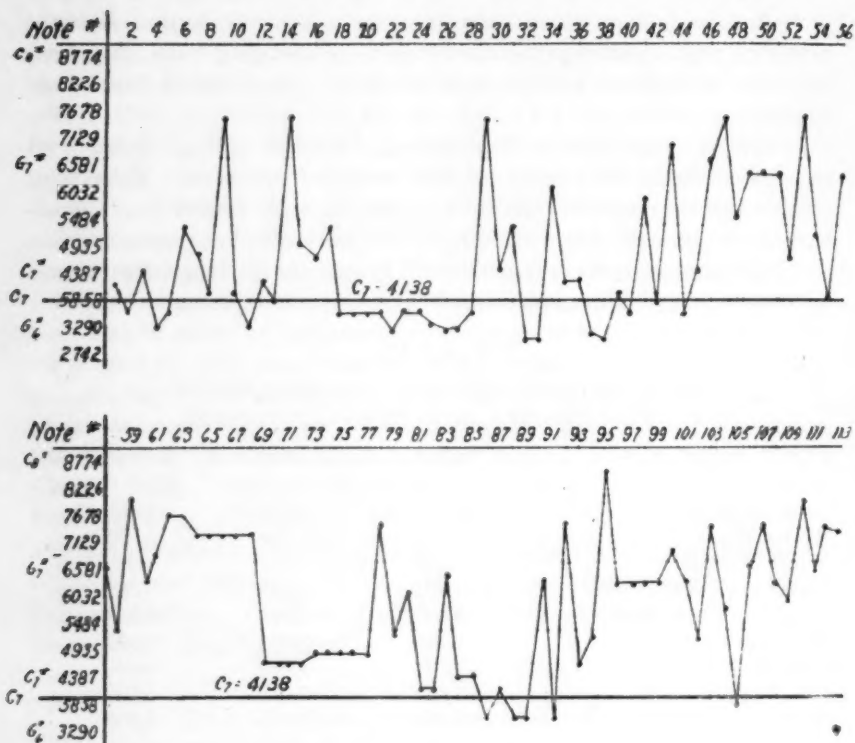
The song of the Grasshopper Sparrow has a component as high as 9,141 cycles, (the highest bird sound I have found thus far) but the whole song is pitched a shade lower or around 8,400 cycles. This is the highest average pitch I have found in these studies, being a note or a note and a half higher than other high ones, such as the Black and White Warbler averaging around 6,900, the Yellow Warbler and Winter Wren averaging around 6,000, and the songs of the Swamp and Savannah Sparrows around 5,000. The average pitch of all the songs studied was slightly higher than 4,000 cycles. In other words, bird song averages around the highest note of the piano. There is only one musical instrument with a higher range than



the piano; that is the piccolo, and that is only one half note higher. Thus it can be said that bird song goes higher than any man made music.

In the graphs of the songs of the Winter Wren and the Song Sparrow (Figs. 4-5) the only variables to be considered were the frequencies and the number of the notes. The dots on the curve represent individual notes.

### Winter Wren



*Graph of Winter Wren's song for frequencies  
(length of notes and stops not considered)*

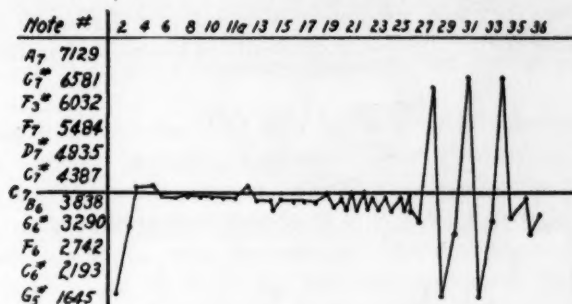
Fig. 4.

Because of the great number of notes in the Winter Wren's song (113 in all), it has been necessary to divide the graph in half. The upper half represents the first half of the song, the lower half represents the second half. Here an interesting phenomenon will be noticed at once. The second half of the song is almost an exact repetition of the first half, except that it is a couple

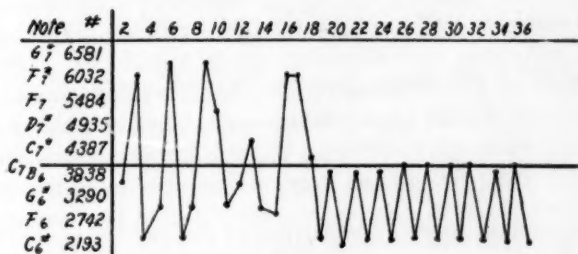
of notes higher. This is exactly what is heard, although some observers have guessed that the second half was a full octave higher than the first.

The graphs of the Winter Wren and Song Sparrow songs illustrate with what rapidity a singing bird goes through the whole scale and back again. These abrupt and lightning quick changes in pitch are most astonishing.

*Song Sparrow*  
Central N.Y.



Song N° 1 of Song Sparrow for frequencies  
(stops not considered)

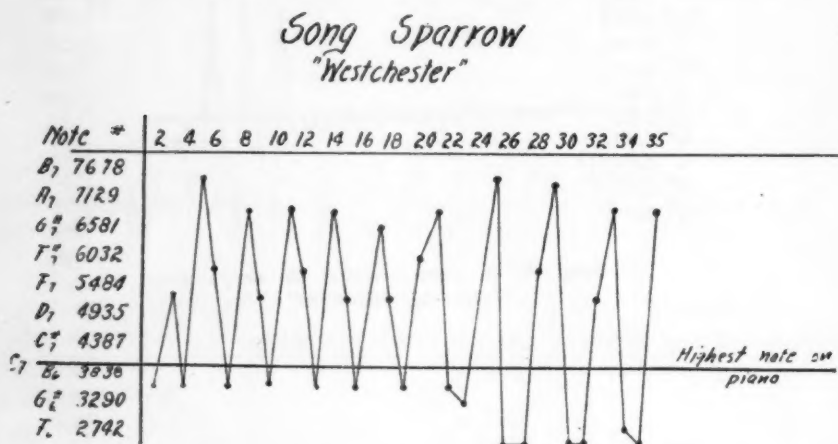


Song N° 2 of Song Sparrow for frequencies  
(stops not considered)

Fig. 5.

Numerous birds have almost infinite variations in their songs. In many species two members of the species rarely sing exactly the same cadence, and an individual bird may have eight or ten or more variations of his ancestral song. Mrs. Nice has noted this in her Song Sparrows, and A. A. Saunders has counted over 600 variations in the songs of that species.

He reports over 1,000 variations in the Eastern Meadowlark's song. These differences are easily detectable on the film, and by making graphs such differences can be carefully studied. Also the interesting way in which a bird often repeats one variation a number of times, and then starts another variation can be studied. In Fig. 5, two variations of a Song Sparrow's song are shown. These songs were taken at the same recording within a few minutes of each other. The bird repeated the first song several times, then started singing the second variation. I examined several samples of the first song; they were practically identical, and if graphed would have made the same curve. Note how different the second song is, however, and



*Song No 1 of Song Sparrow for frequencies*  
*(stops not considered)*

Fig. 6.

yet there are certain marked similarities of the curves, among them the changes in pitch.

Fig. 6 also represents the song of a Song Sparrow, but it was produced by an entirely different bird than the author of the songs in Fig. 5. Yet there is a marked similarity between it and one of those in Fig. 5. The songs in Fig. 5, were recorded at Cortland, in central New York, while the other song was recorded in Westchester County, New York.

I make no attempt to go into a detailed analysis of these graphs, but merely offer them to illustrate the possibilities of this type of study. One thing that is apparent from even a casual look at the graphs, is that song is not haphazard. Repetition is one of its most striking characteristics,

and this is true in what appear to the ear as rather unrepitious songs. Certain phrases within the individual song appear over and over again.

I quote from a Song Sparrow study in my note book: "There is a definite pattern to this song which goes from beginning to end as is clearly shown by the graph. The rhythm was visually quite noticeably a 'three note and repeat' pattern in the early part of the song. It was as follows:—a low, long note followed by a short, very high one, and another short one but not quite so high. In the second half of the song the long, low first note is broken up into two short low ones, and the order of the following high notes is reversed. When studying the film I could know, after a little while, exactly what form of note to expect in the microscope eye-piece, the arrangement was so orderly."

These studies indicate that bird song on the whole is higher than we had been led to assume. Musical instruments do not go that high, and that is probably one of the many reasons why it is impossible to imitate bird sound successfully with such instruments.

Experience has shown that phonograph recordings are far from satisfactory with bird songs in which the high frequencies are prominent and long sustained, while lower pitched songs are easily recordable. Commercial phonographs are not refined enough to play back the excessively high vibrations of certain bird sounds. We further conclude that many songs which sound continuous are not so, but are broken up into more numerous notes and stops than the ear can detect.

From the study of the film it seems highly probable that some few birds sing beyond the range of human hearing. In the song of the Winter Wren we struck a rather startling indication of this. This song was recorded by my co-worker, Mr. Paul Kellogg, assisted by my son. Mr. Kellogg developed the film, and edited it very carefully by ear by playing it back through a sound projector. He marked the end of each song in ink on the film. Later when I studied this film under the microscope I found that in all of the fourteen songs so marked, each had the end marked several notes before the actual end as seen in the microscope. It varied, but Mr. Kellogg had missed from three to eight or nine notes in each song. In one song of 113 notes the end was marked at the 106th. It was obvious that the sound was so high that Mr. Kellogg, who is a most meticulous worker with an ear well-trained for such sounds, and who was particularly anxious not to mutilate his recordings, had not heard the ending notes.

In studying some songs on the film, the character of certain notes and the way in which they stop abruptly on the film, seem to indicate that further sound was produced by the bird, probably so high as to be inaudible, and also too high to be photographed by our present apparatus. However, this is merely surmise; further work will have to be done before these guesses can

be established as facts; but with the constant refining of the machinery used in sound photography, we should be able to decide these points in the near future.

*American Museum of Natural History,  
New York City.*



## THE FIFTY-SECOND STATED MEETING OF THE AMERICAN ORNITHOLOGISTS' UNION.

BY T. S. PALMER.

FOR the second time in its history the Union met in Chicago and in connection with an exposition. Low rates and the attractions of a fair are strong inducements for increasing attendance, notwithstanding the disadvantages of crowds and distractions of many kinds. When the Union met in San Francisco in 1915 its headquarters were on the Exposition grounds, and this year they were only a few blocks away, at the Hotel Stevens, while the public meetings were held in the Field Museum just outside the gates of the Century of Progress Exposition.

*Business Sessions:* The usual Monday meetings included two sessions of the Council at 10 a. m., and 2 p. m., a meeting of the Fellows at 4 p. m., and a meeting of the Fellows and Members at 8 p. m. At the meeting of the Fellows, A. W. Anthony, a Fellow since 1895, was transferred at his request to the list of Retired Fellows and four vacancies in the list of Fellows were filled by the election of S. Prentiss Baldwin and F. H. Herrick of Cleveland, F. C. Lincoln of Washington and A. J. van Rossem of Pasadena. The evening meeting was attended by 18 Fellows and 26 Members. The report of the Secretary showed a membership of approximately 2,000; the Treasurer reported total receipts of \$10,701.82, disbursements of \$10,042.64, and a balance of \$659.18 on Sept. 29, 1934; while the report of the Trustees presented in detail the condition of the permanent funds of the Union.

The election resulted in the selection of two Honorary and ten Corresponding Fellows, ten Members and 162 Associates. The Officers for 1934 were reelected for the ensuing year and W. H. Osgood was elected to fill the vacancy on the Council caused by the death of Ruthven Deane.

The business was confined chiefly to routine matters. Provision was made for publishing a pocket edition of the 'Check List of North American Birds' and this project was entrusted to a committee of which Dr. Alexander Wetmore is Chairman. The usual contribution was made to the Zoological Society of London in support of the 'Zoological Record,' and a committee was appointed to revise the Bylaws. Toronto, Ontario, was selected as the place for the next meeting to be held October 21-24, 1935.

Appreciation of the numerous courtesies extended to the Union was expressed by the adoption of resolutions of thanks to the Local Committee of Arrangements, the authorities of the Field Museum of Natural History, the Chicago Zoological Society, the Library of Congress, the Ford Motor Company, and to Miss Margaret Conover and Mrs. Rudyerd Boulton.

*Public Meetings:* The public meetings opened on Tuesday morning with an address of welcome by S. C. Simms, Director of the Field Museum, and a response on behalf of the Union by Dr. Alexander Wetmore, Assistant Secretary of the Smithsonian Institution. Following the roll call of Fellows and Members and a brief statement of results of the business meeting, reports were presented by the chairmen of the Committees on Arrangements, Bird Protection, and Biography.

The program included 62 papers, eight of which were read by title. In order to afford opportunity for discussion of the scientific papers a special evening session for memorial addresses was held on Tuesday and double sessions on Wednesday. In general the program was characterized by the number of life history papers and comparatively few travelogues, motion pictures and technical papers. Most of the morning session on Thursday was devoted to a discussion of the various phases of the water-fowl situation. Reports were presented on the Eighth International Ornithological Congress at Oxford, the John B. Semple Expedition to British Columbia, the American Museum Expedition to New Guinea, the Field Museum Expedition to Nigeria, the Cornell University Expedition to Churchill on Hudson Bay and R. T. Moore's ascent of Mount Chimborazo in Ecuador. Motion pictures were shown by A. M. Bailey of characteristic birds of two proposed National Park areas in the Great Smoky Mountains of Tennessee and North Carolina, and the Everglades of Florida. The birds of the Upper Peninsula of Michigan were described by Wing and those of the Bird Islands of Great Salt Lake by Sugden. Life history studies were presented on the Pied-billed Grebe, American Woodcock, Ruffed Grouse, Derby Guan, Marsh Hawk, Sparrow Hawk, Great Horned Owl, Ivory-billed Woodpecker, European Starling, House Wren, Meadowlark, Baird's Sparrow, Song Sparrow and Tree Sparrow. The more technical papers included 'Problems in Recording Songs of Birds on Film,' 'Progress in the Study of the Anatomy of the Tubinares,' 'Affinities of the Ring Dove,' 'Experimental Study of Sex Recognition in Birds,' 'Precocious Development of Sexual Characters in the Fowl following Pituitary Treatment,' 'Factors of Speciation' and 'Some Aspects of the Subspecies Problem.'

The presentation of these and other papers on the program brought out many novel and interesting points but want of space prevents mention of more than a few. Sutton found that traders in British Columbia were encouraging the Indians to kill Eagles by offering rewards of \$2.50 for the wings and tails of each bird. This plumage was later sold at a handsome profit to Indians in the Southwest, especially the Hopis and the Indians of the Plains, and sometimes brought as much as \$1.00 per feather. On the Churchill Expedition Allen devoted special attention to the Ptarmigan, shipped back eggs and successfully reared the first Ptarmigan ever raised in

captivity.<sup>1</sup> The nesting habits of Harris' Sparrow were also observed and the first pictures secured of the female on the nest and of the young. Boulton traced the development of the 'Bird Collections of the Field Museum' from a nucleus of about 1000 mounted birds exhibited at the World's Columbian Exposition in 1893 to the present total of about 100,000 specimens. Stone, in discussing 'Some Pre-Linnaean Ornithologists,' emphasized the fact that Linnaeus never saw many of the birds he named from North America. His descriptions were based on the accounts of Catesby, Edwards and Brisson whose biographies and contributions were briefly outlined.

In the series of life history papers Shortt reported some valuable observations on the habits of Baird's Sparrow based on 15 nests and called attention to the fact that only 19 other nests of this species were known. Breckenridge showed some remarkable motion pictures of Marsh Hawks illustrating how the prey is transferred in midair from the male to the female. Under the title 'Wild Birds in Hens' Clothing,' Miss Knappen enumerated the various birds of which the females have been described as 'hens' and the young as 'chickens.' In considering 'A Neglected Natural Resource' she described with some detail how certain Hawks are treated as game and prepared for the table by hunters at Cape May, N. J. In the discussion which followed it was suggested that this practice probably developed after Flicker shooting was prohibited in 1903.

In the game bird session many facts regarding the feeding habits of the Woodcock were given and the mechanism for controlling the flexibility of the bird's bill was described. In the discussion of the water-fowl situation the fact was brought out that not only are Canvasbacks, Redheads, Lesser Scaups and Buffle-heads greatly reduced in numbers but that the Black Duck also suffered severely last year in Eastern Canada and along the New England coast on account of the severe winter and the shortage of eel-grass.

Tuesday evening a well attended memorial session was held in the Tower Room of the Stevens Hotel at which addresses were presented in honor of the Fellows who had died since the last meeting. Three memorials in honor of Ruthven Deane, Edward W. Nelson and Charles W. Townsend were presented by W. H. Osgood, E. A. Goldman and Glover M. Allen respectively (the last read by the Secretary); and two in honor of Robert W. Shufeldt and Otto Widmann were read by title. The custom of presenting formal addresses on the activities of deceased Fellows dates back more than forty years but only in 1895, 1928 and 1932 were special sessions held and on each occasion a large and attentive audience was present.

*Exhibits:* No formal exhibition of bird art was attempted this year but the original paintings made by Louis Agassiz Fuertes on the expedition to

<sup>1</sup> See Allen, A. A., 'Studying Ptarmigan at Hudson Bay.' *Am. Game*, Sept.-Oct. 1934, pp. 67, 72-73.

Abyssinia were exhibited in a special hall. These, representing Fuertes' last, and in some respects his best, work were arranged in well lighted museum wall cases and the opportunity of examining them was greatly appreciated by members of the Union. A series of these paintings has been issued in the form of an atlas and may be had at a nominal price from the Field Museum. There were also exhibited a series of twenty group photographs of the Union from the Deane Collection in the Library of Congress. These pictures, representing a complete set of all the groups taken since the organization of the Union, included most of the prominent members.<sup>1</sup>

*Social Features:* Luncheon was served in the cafeteria of the Field Museum and the space reserved for members of the Union was crowded to capacity each day. Other social features included a dinner to the Fellows at the University Club on Monday evening, the annual dinner of the Union on Wednesday evening and a tea on Thursday afternoon, immediately after adjournment of the meeting. The annual dinner was held in the North Ball Room of the Stevens Hotel and was attended by 198 members and guests. After the repast the audience was given an opportunity of seeing some of the progress of ornithology during the next fifty years by 'looking backward' at some of the features of an imaginary centennial celebration of the Union in 1983. Birds of the stratosphere were described and some of their peculiarities pointed out. The artificial breeding of birds to develop certain characteristics was illustrated by a synthetic hen which could lay eight or ten eggs at a time when prices were high or, on occasion, a series of golf balls in lieu of eggs. Modifications in plumage, also the result of careful breeding, were illustrated by a strange bird which was offered as a prize to the member who was most successful in identifying the various plumages developed in the makeup. The evening closed with a distribution of 'The Auklet.' The Thursday afternoon tea given by Miss Margaret Conover and Mrs. Rudyerd Boulton in the Trustees' Lounge on the grounds of the Exposition furnished an opportunity for the members to meet socially and will long be remembered as one of the most pleasant incidents of the convention.

*Excursions:* Outings were arranged to the Chicago Zoological Gardens at Brookfield on Friday, and to the Indiana State Park at The Dunes on Friday and Saturday. About 40 members visited the Zoo and had an opportunity of inspecting the collection which is rich in Australian species, particularly birds. Many of the larger mammals are exhibited behind moats without the usual bars or gates. Ten members visited the Indiana Dunes on Friday and 20 on Saturday. In spite of wind and rather low temperatures

<sup>1</sup> Arrangements have been made whereby copies of any of these photographs in full size at \$2 each, and in reduced size at 50c each, may be had from the L. C. Handy Studios, 494 Maryland Ave., S. W., Washington, D. C., and copies of keys to the groups may be had on application to the Division of Fine Arts in the Library of Congress.



they reported a fair number of birds including a Jaeger, which is an uncommon visitant in this region.

### THE PROGRAM.

Papers are arranged in the order in which they were presented at the meeting. Those marked with an asterisk (\*) were illustrated by lantern slides; those marked with a dagger (†) were illustrated by motion pictures.

#### TUESDAY MORNING.

Welcome by S. C. Simms, Director of Field Museum.

Response on behalf of the Union by Dr. Alexander Wetmore, Assistant Secretary, Smithsonian Institution.

Roll Call of Fellows and Members, Report of the Business Meeting, Announcement of the Result of Elections.

Report of the Local Committee on Arrangements. W. H. Osgood, Field Museum, Chicago, Ill., Chairman.

Report of the Committee on Bird Protection. Harold C. Bryant, National Park Service, Washington, D. C., Chairman.

Report of the Committee on Biography and Bibliography—The Deane Collection of Portraits. T. S. Palmer, Washington, D. C., Chairman.

1. The Eighth International Ornithological Congress at Oxford. Alexander Wetmore, Smithsonian Institution, Washington, D. C. (20 min.)
2. Report of the John B. Semple Expedition to British Columbia. George M. Sutton, Cornell University, Ithaca, N. Y. (15 min.)
3. Photoperiodism and Bird Migration. C. W. G. Eifrig, Concordia Teachers College, River Forest, Ill. (25 min.)
4. Inclement Weather as a Factor in Bird Mortality. A. F. Ganier, Nashville, Tenn. (20 min.)
5. Bird Collections in Field Museum. Rudyerd Boulton, Field Museum, Chicago, Ill. (10 min.)

#### TUESDAY AFTERNOON.

6. \*The Bird Life of Papua. Richard Archbold, American Museum of Natural History, New York. (30 min.)
7. \*Observations on the Development of the Beak in the Duck and the Goose. R. M. Strong, Loyola University School of Medicine, Chicago, Ill. (20 min.)
8. The Ivory-billed Woodpecker in Louisiana. George H. Lowery, Jr., Louisiana State University, Baton Rouge, La. (20 min.)
9. †Birds of the Great Smokies. Alfred M. Bailey, Chicago Academy of Sciences, Chicago. (15 min.)
10. †Notes on the Life History of the Marsh Hawk. Walter J. Breckenridge, University of Minnesota, Minneapolis. (15 min.)
11. †The Mount Chimborazo Massif of Ecuador and its Bird Life. Robert T. Moore, Pasadena, Calif. (45 min.)

#### TUESDAY EVENING—SPECIAL MEMORIAL SESSION.

(In accordance with a custom of long standing, "suitable Memorials . . . to be read at the first Stated Meeting" after the death of Fellows are prepared pursuant to a Resolution adopted by the Union at its Tenth Meeting in November, 1892.)

12. In Memoriam: Ruthven Deane, 1851-1934. Wilfred H. Osgood, Field Museum, Chicago, Ill.



13. In Memoriam: Edward William Nelson, 1855-1934. Edward A. Goldman, Biological Survey, Washington, D. C.
14. In Memoriam: Robert Wilson Shufeldt, 1850-1934. Koloman Lambrecht, Budapest, Hungary. (Read by title.)
15. In Memoriam: Charles Wendell Townsend, 1859-1934. Glover M. Allen, Museum Comparative Zoology, Cambridge, Mass. (Presented by T. S. Palmer.)
16. In Memoriam: Otto Widmann, 1841-1933. T. S. Palmer, Washington, D. C. (Read by title.)

## WEDNESDAY MORNING—GENERAL SESSIONS.

17. \*Observations on the Birds of the Upper Peninsula of Michigan. Leonard W. Wing, University of Wisconsin, Madison, Wis. (20 min.)
18. \*Nesting of the Great Horned Owl in the Chicago Area. Cleveland P. Grant, Baker-Hunt Museum, Covington, Ky. (15 min.)
19. \*City Sparrow Hawks. Bayard H. Christy, Sewickley, Pa. (15 min.)
20. Inheritance of Song in the Song Sparrow. Mrs. Margaret M. Nice, Columbus, Ohio. (15 min.)
21. \*Factors Affecting Yearly Abundance of House Wrens. S. Charles Kendeigh, Western Reserve University, Cleveland, Ohio. (20 min.)
22. \*Some Problems in Recording Songs of Birds on Film. Paul Kellogg, Cornell University, Ithaca, N. Y. (30 min.)
23. \*A Method for Intensive Study of Bird Sound. Albert R. Brand, American Museum of Natural History, New York. (25 min.)
24. First General American Bird Lists by Jedidiah Morse in 1789 and 1793. L. Nelson Nichols, New York. (Read by title.)

## WEDNESDAY MORNING—LIFE HISTORY SESSION.

25. \*The Nesting of the Oven Bird. H. W. Hann, University of Michigan, Ann Arbor, Mich. (20 min.)
26. Remarks on the Molt and Sequence of Plumages in Several Species of Sparrows. George M. Sutton, Cornell University, Ithaca, N. Y. (15 min.)
27. Wild Birds in Hens' Clothing. Phoebe M. Knappen, Biological Survey, Washington, D. C. (10 min.)
28. \*Further Notes on the Tree Sparrow. A. Marguerite Heydweiller, Cornell University, Ithaca, N. Y. (15 min.)
29. The Importance of Life History Research and the Restoration of Environment. J. N. Darling, Chief, U. S. Biological Survey, Washington, D. C.
30. \*The Life History of Baird's Sparrow. B. W. Cartwright, T. M. Shortt, and R. D. Harris. (Presented by T. M. Shortt, Royal Ontario Museum, Toronto.) (15 min.)
31. †A Trip in a Swamp. David O'Meara, Fort Wayne, Ind. (25 min.)
32. \*The Birth of a Snipe Family (*Capella delicata*). Henry Mousley, Montreal, Canada. (Read by title.)
33. Notes on the Life History of Derby's Guan. E. R. Blake, Homestead, Pa. (10 min.)
34. Seasonal and Individual Variations in Banded House Sparrows. John T. Nichols, American Museum of Natural History. (Read by title.)

WEDNESDAY AFTERNOON—GENERAL SESSION.

35. Report of Progress on the Anatomy of the Tubinares and Bibliography of Birds. R. M. Strong, Loyola University School of Medicine, Chicago, Ill. (15 min.)
36. A Neglected Natural Resource. Phoebe M. Knappen, Biological Survey, Washington, D. C. (5 min.)
37. \*The Nesting of the Pied-billed Grebe. Charles K. Carpenter, Chicago, Ill. (30 min.)
38. Some Pre-Linnaean Ornithologists—Catesby, Edwards and Brisson—and their Place in the History of North American Ornithology. Witmer Stone, Academy of Natural Sciences, Philadelphia, Pa. (25 min.)
39. \*Results from Banding 65,000 Birds. W. I. Lyon, Waukegan, Ill. (20 min.)
40. Sanctuaries of the Bird Islands of Great Salt Lake. John W. Sugden, Salt Lake City, Utah. (25 min.)

WEDNESDAY AFTERNOON—TECHNICAL SESSION.

41. Affinities and Probable Origin of the Domesticated Ring Dove (*Streptopelia risoria*). Leon J. Cole, University of Wisconsin, Madison, Wis. (20 min.)
42. \*An Experimental Study of Sex Recognition in Birds. G. K. Noble and William Vogt, New York. (15 min.)
43. \*Flock Organization in the Shell Paroquet. R. H. Masure and W. C. Allee, University of Chicago. (15 min.)
44. Precocious Development of Sexual Characters in the Fowl, following Pituitary Treatment. L. V. Domm, University of Chicago. (20 min.)
45. Some Factors of Speciation. Alfred E. Emerson, University of Chicago. (20 min.)
46. Some Aspects of the Subspecies Problem. Witmer Stone, Academy of Natural Sciences, Philadelphia, Pa. (20 min.)
47. Taxonomy and Natural History of Meadowlarks. George B. Saunders, Dept. of Conservation, Lansing, Mich. (20 min.)

THURSDAY MORNING—GAME BIRDS AND CONSERVATION.

48. Observations on the Feeding Habits and Food of the American Woodcock. Olin S. Pettingill, Jr., Middleton, Mass. (30 min.)
49. Life History and Population Cycles of Wisconsin Grouse. Aldo Leopold, University of Wisconsin, Madison, Wis. (10 min.)
50. How the Soil Erosion Service Program Affects Wild Life. Lawrence E. Hicks, Soil Erosion Service, Zanesville, Ohio. (Read by title.)
51. Sex Ratios in the European Starling. Lawrence E. Hicks, Soil Erosion Service, Zanesville, Ohio. (15 min.)
52. Returns from Canada Geese Banded in California. James Moffitt, San Francisco, Calif. (Read by title.)
53. The Waterfowl Situation: General Statement. Clarence Cottam, Biological Survey, Washington, D. C. (15 min.)
54. \*The Four Major Waterfowl Flyways. Frederick C. Lincoln, Biological Survey, Washington, D. C. (15 min.)
55. Waterfowl Breeding Grounds of Northern Canada. E. A. Preble, Biological Survey, Washington, D. C. (15 min.)
56. Plans for the Conservation of Waterfowl. J. N. Darling, Chief, Biological Survey, Washington, D. C.
57. Some Sidelights on the Waterfowl Breeding Grounds. W. B. Bell, Biological Survey, Washington, D. C. (Read by title.)

## THURSDAY AFTERNOON.

58. †Birds of the Niger. Rudyerd Boulton and John F. Jennings, Field Museum, Chicago. (30 min.)
59. †Florida Bird Life. Alfred M. Bailey, Chicago Academy of Sciences. (30 min.)
60. †Birds of Timberline and Tundra. Arthur A. Allen, Cornell University, Ithaca, N. Y. (45 min.)
61. †The Bowdoin-MacMillan Arctic Expedition. Alfred O. Gross, Bowdoin College, Brunswick, Me. (Read by title.)
62. †Hatching Studies of Precocial Birds. Cleveland P. Grant, Baker-Hunt Museum, Covington, Ky. (30 min.)

## ATTENDANCE.

Although the 1934 meeting was the largest ever held outside of New York, Philadelphia and Washington, the number of Fellows present was smaller than usual and 20 per cent less than at the previous meeting in Chicago. This loss was compensated by a larger number of Members and the wide distribution of the Associates and visitors. The register showed the presence of 19 Fellows, 31 Members, 143 Associates and about 75 visitors,<sup>2</sup> making a total of approximately 270.

This was the third meeting at which no Founders were present but two Fellows were on hand who were elected at the first meeting 51 years ago. California was represented by 4 members, Utah by 1 and Canada by 13 from 5 Provinces. Representatives were present from 25 States, including 6 States west of the Mississippi River and all but 6 east of that line.

Twenty-one colleges and universities, 19 museums and a number of conservation organizations were also represented.

Inclement weather unfortunately postponed the taking of the official photograph until Thursday when some of the members had departed but 171 members and visitors were included in the picture taken on the south steps of the Museum.

## FELLOWS, MEMBERS AND ASSOCIATES PRESENT (BY STATES).

CALIFORNIA, 4—*Members*, C. G. Abbott, San Diego; R. T. Moore, Pasadena; George Willett, Los Angeles; *Associate*, James Moffitt, San Francisco.

DISTRICT OF COLUMBIA, 19—*Fellows*, Herbert Friedmann, A. H. Howell, F. C. Lincoln, H. C. Oberholser, T. S. Palmer, Alexander Wetmore; *Members*, H. C. Bryant, Clarence Cottam, E. A. Goldman, E. A. Preble; *Associates*, W. Howard Ball, C. H. M. Barrett, W. B. Bell, J. N. Darling, Mrs. J. S. Elliott, C. W. H. Ellis, Miss P. M. Knappen, Mrs. T. S. Palmer, J. S. Wade.

FLORIDA, 1—*Associate*, Mrs. C. W. Melcher, Homosassa Springs.

<sup>2</sup> Among the visitors were several former Associates including Frank Lett and F. C. Test of Chicago, Edmund Heller of Milwaukee, Mrs. W. C. Herman of Cincinnati and G. H. H. Tate of New York. Representatives were also present from 3 States not included in the following lists—R. J. Niedrach, Denver, Colo.; H. W. Jones, Sanford, Maine; and Mrs. W. S. Randall, Austin, Texas.

- GEORGIA, 3—*Member*, H. L. Stoddard, Thomasville; *Associates*, Miss B. L. Jarrard, Miss Ethel Purcell, Atlanta.
- ILLINOIS, 48—*Fellow*, W. H. Osgood, Chicago; *Members*, A. M. Bailey, Rudyerd Boulton, H. B. Conover, R. M. Strong, Chicago; C. W. G. Eifrig, River Forest; B. T. Gault, Glen Ellyn; S. S. Gregory, Jr., Winnetka; W. I. Lyon, Waukegan; *Associates*, C. E. Abbott, Mrs. H. L. Baldwin, C. T. Black, E. R. Blake, C. K. Carpenter, A. D. Coble, N. E. Collias, Mrs. Theron Colton, E. R. Ford, A. J. Franzen, F. W. Hill, Alfred Lewy, J. W. Moyer, G. S. Pearsall, Karl Plath, W. S. Primley, C. C. Sanborn, Miss E. B. Shull, J. G. Suthard, J. S. White, L. R. Wolfe, Chicago; R. M. Barnes, Lacon; Mrs. E. T. Baroody, Berwyn; K. E. Bartel, A. H. Reuss, Jr., Blue Island; Robert Bean, Miss C. A. Mitchell, Riverside; F. C. Bellrose, Ottawa; A. R. Cahn, R. E. Yeatler, Urbana; E. F. Hulsberg, La Grange; J. P. Kellogg, Leslie Wheeler, Lake Forest; J. J. Mooney, C. H. Pangburn, W. D. Thorsen, W. A. Weber, Highland Park; William Osburn, Morris; C. R. Stout, Barrington.
- INDIANA, 6—*Associates*, Earl Brooks, Noblesville; M. W. Lyon, Jr., South Bend; David O'Meara, Fort Wayne; S. E. Perkins III, Indianapolis; Mrs. A. P. Schroeder, Bluffton; L. A. Test, West Lafayette.
- IOWA, 6—*Member*, T. C. Stephens, Sioux City; *Associates*, O. P. Allert, McGregor; Mrs. H. M. Bailey, Sioux City; Henry Birkeland, Nevada; P. A. Du Mont, Mrs. Toni Wendelburg, Des Moines.
- KENTUCKY, 1—*Associate*, C. P. Grant, Covington.
- LOUISIANA, 1—*Associate*, G. H. Lowery, Jr., Baton Rouge.
- MARYLAND, 1—*Associate*, W. C. Henderson, Chevy Chase.
- MASSACHUSETTS, 3—*Fellow*, J. L. Peters, Harvard; *Associates*, O. S. Pettingill, Jr., Middleton; R. T. Peterson, Brookline.
- MICHIGAN, 20—*Member*, Josselyn Van Tyne, Ann Arbor; *Associates*, S. B. Benson, W. Pierce Brodtkorb, L. R. Dice, H. W. Hann, T. D. Hinshaw, R. E. Olsen, M. M. Peet, M. B. Trautman, Ann Arbor; W. G. Fargo, Mrs. E. K. Frey, Jackson; Mrs. A. C. Flood, Bloomfield Hills; M. J. Magee, Sault Ste. Marie; N. T. Peterson, M. D. Pirnie, L. A. Walkinshaw, Battle Creek; W. E. Praeger, Kalamazoo; G. F. Raz, Union Pier; Mrs. E. B. Wilson, Detroit.
- MINNESOTA, 3—*Fellow*, T. S. Roberts, *Associates*, W. J. Breckenridge, William Kilgore, Jr., Minneapolis.
- MISSISSIPPI, 1—*Associate*, Miss F. A. Cook, Jackson.
- MISSOURI, 1—*Associate*, G. B. Happ, St. Louis.
- NEBRASKA, 1—*Member*, M. H. Swenk, Lincoln.
- NEW HAMPSHIRE, 1—*Associate*, J. P. Miller, Newport.
- NEW JERSEY, 4—*Member*, C. H. Rogers, Princeton; *Associates*, G. A. Ammann, Boonton; L. L. Walsh, Ridgewood; J. A. Weber, Leonia.
- NEW YORK, 17—*Fellows*, A. A. Allen, Ithaca; J. T. Zimmer, New York; *Members*, J. T. Nichols, New York; James Savage, Buffalo; G. M. Sutton, Ithaca; *Associates*, Richard Archbold, J. H. Baker, A. V. S. Lambert, Mr. and Mrs. Carl Tucker, New York; F. M. Baumgartner, Miss A. M. Heydweiller, Paul Kellogg, J. T. Tanner, Ithaca; William Vogt, Wantagh; Mr. and Mrs. A. R. Brand, White Plains.
- OHIO, 8—*Fellow*, S. P. Baldwin, Cleveland; *Members*, S. C. Kendeigh, Cleveland; Mrs. M. M. Nice, Columbus; *Associates*, J. W. Aldrich, Cleveland; G. M. Cook, Youngstown; W. C. Herman, Cincinnati; L. E. Hicks, Columbus; F. M. Phelps, Elyria.



PENNSYLVANIA, 9—*Fellows*, Witmer Stone, Philadelphia; W. E. C. Todd, Pittsburgh; *Member*, B. H. Christy, Sewickley; *Associates*, A. W. Robinson, Miss R. G. Robinson, Haverford; Mrs. Witmer Stone, P. B. Street, Philadelphia; J. B. Semple, Sewickley; H. T. Underdown, Elkins Park.

TENNESSEE, 1—*Member*, A. F. Ganier, Nashville.

UTAH, 1—*Associate*, J. W. Sugden, Salt Lake City.

VERMONT, 1—*Associate*, W. P. Smith, Wells River.

VIRGINIA, 1—*Fellow*, W. L. McAtee, Cherrydale.

WISCONSIN, 16—*Members*, L. J. Cole, Madison; E. G. Holt, La Crosse; *Associates*, W. W. Chase, Mrs. E. G. Holt, La Crosse; J. T. Emlen, Jr., Aldo Leopold, F. J. W. Schmidt, A. W. Schorger, L. W. Wing, Madison; O. J. Gromme, C. S. Jung, W. J. Mueller, Miss E. A. Oehlenschlaeger, Miss I. M. Schwandt, Milwaukee; Mrs. W. E. Rogers, Appleton; H. C. Wilson, Ephraim.

CANADA, 13—Alberta, *Associate*, A. C. Twomey, Camrose; Manitoba, *Associate*, C. L. Broley, Winnipeg; Nova Scotia, *Associate*, A. L. Rand, Wolfville; Ontario, *Fellows*, J. H. Fleming, Toronto; Hoyes Lloyd, P. A. Taverner, Ottawa; W. E. Saunders, London; *Members*, R. M. Anderson, H. F. Lewis, Ottawa; *Associates*, F. H. Emery, T. M. Shortt, Toronto; Mrs. Hoyes Lloyd, Ottawa; Saskatchewan, *Associate*, L. B. Potter, Eastend. Total 193.

#### EDUCATIONAL INSTITUTIONS AND CONSERVATION ORGANIZATIONS REPRESENTED AT THE MEETING.

COLLEGES AND UNIVERSITIES, 21—California Institute of Technology, Concordia Teachers College, Cornell, Kalamazoo College, Loyola, Mississippi State College, Morningside, Ohio State, Princeton, Principia (St. Louis), Purdue, University of Chicago, University of Iowa, University of Louisiana, University of Michigan, University of Minnesota, University of Nebraska, University of Pennsylvania, University of Toronto, Western Reserve and University of Wisconsin.

MUSEUMS, 19—Academy of Natural Sciences of Philadelphia, American Museum of Natural History, Baker-Hunt Museum of Covington, Ky., California Institute of Technology, Canadian National Museum, Carnegie Museum of Pittsburgh, Chicago Academy of Sciences, Cleveland Museum, Field Museum, Los Angeles Museum, Milwaukee Public Museum, Museum of Comparative Zoology, Natural History Museum of San Diego, the Museums of Cornell, University of Michigan, University of Minnesota, and Princeton University, Royal Ontario Museum, and the U. S. National Museum.

CONSERVATION ORGANIZATIONS—Biological Survey, U. S. Department of Agriculture, National Park Service, U. S. Department of the Interior, U. S. Erosion Service, Canadian National Parks, Office of State Ornithologist of Vermont, National Association of Audubon Societies, Audubon Societies of District of Columbia, Illinois, Indiana and New Jersey, and the Jones Beach Bird Sanctuary, N. Y.

#### ELECTION OF OFFICERS.

The election of officers for 1935 resulted as follows: President, J. H. Fleming; Vice-Presidents, A. C. Bent and Herbert Friedmann; Secretary, T. S. Palmer; Treasurer, W. L. McAtee. Members of the Council (in addition to officers and ex-presidents) A. A. Allen, J. P. Chapin, H. C. Oberholser, W. H. Osgood, T. S. Roberts, and P. A. Taverner.

The Council elected Witmer Stone, Editor of 'The Auk'; W. L. McAtee, Business Manager; George Stuart, 3d, C. B. Riker and Edward Norris, Trustees; and J. H.



Fleming, S. S. Gregory, Jr., Ludlow Griscom, W. L. McAtee, and T. S. Palmer, members of the Finance Committee.

ELECTION OF FELLOWS, MEMBERS AND ASSOCIATES.

FELLOWS—4.

Samuel Prentiss Baldwin, Cleveland, O.  
Francis Hobart Herrick, Cleveland, O.  
Frederick Charles Lincoln, Washington, D. C.  
Adriaan Joseph Van Rossem, Pasadena, Calif.

RETIRED FELLOW—1.

Alfred Webster Anthony, San Diego, Calif. (By transfer)

HONORARY FELLOWS—2.

Nils Gyldenstolpe, Stockholm, Sweden.  
Norman Boyd Kinnear, London, England.

CORRESPONDING FELLOWS—10.

Max Bartels, Pasir Dataer, Java.  
Charles Frederic Belcher, Port of Spain, Trinidad.  
Frederick Nutten Chasen, Singapore, Straits Settlements.  
Georges Dementiev, Moscow, U. S. S. R.  
Rudolf Drost, Heligoland, Germany.  
Pawel Pateff, Sofia, Bulgaria.  
Moriz Sassi, Vienna, Austria.  
H. Schouteden, Tervueren, Belgium.  
H. C. Siebers, Semarang, Java.  
Frederich Steinbacher, Berlin, Germany.

MEMBERS—10.

Beecher Scoville Bowdish, Demarest, N. J.  
Herbert Hutchinson Brimley, Raleigh, N. C.  
Verdi Burtch, Branchport, N. Y.  
Leon Jacob Cole, Madison, Wis.  
Clarence Cottam, Washington, D. C.  
Albert Franklin Ganier, Nashville, Tenn.  
Stephen Strong Gregory, Jr., Winnetka, Ill.  
Francis Lee Jaques, New York, N. Y.  
Olaus Johan Murie, Jackson, Wyo.  
James Savage, Buffalo, N. Y.

ASSOCIATES—162.

The names of Associates who have qualified will appear in 'The Auk' for April, 1935.

## REPORT OF THE SECRETARY.

BY T. S. PALMER.

*Membership:*—The report for 1933 showed a total of 1993 members. At the annual meeting two Corresponding Fellows and 127 Associates were elected who later qualified, making a total of 2122. Since then deaths and resignations have reduced this number considerably. The following statement shows the figures of the present membership in comparison with that of last year and ten years ago.

	<i>Fellows</i>	<i>Retired Fellows</i>	<i>Hon- orary Fellows</i>	<i>Corres- ponding Fellows</i>	<i>Members</i>	<i>Associates</i>	<i>Total</i>
1924	50	5	23	89	96	1374	1637
1933	49	3	23	89	103	1726	1993
1934	45	2	23	89	107	1800(?)	2066(?)

Losses by death included 4 Fellows, 1 Retired Fellow, 1 Corresponding Fellow, 4 Members and 15 Associates, a total of 25.

Conditions have been somewhat more favorable than last year for increasing the membership and it is hoped that they will continue to improve, so that before long the total can be increased to 2500.

*Activities of Members Abroad:*—The Eighth International Ornithological Congress which met in Oxford in July 1934 brought together a large number of ornithologists from all parts of the world. At this meeting the A. O. U. was represented not only by its foreign Fellows, but by 11 Fellows and Members from America, including its President, J. H. Fleming; its Vice President, Herbert Friedmann; and one of its ex-Presidents, Alexander Wetmore. Following the Congress one of our Honorary Fellows, Austin Roberts of Pretoria, South Africa, spent some weeks in the United States visiting the museums in Cambridge, Chicago, New York, Philadelphia, Pittsburgh and Washington before returning home. Among other members who visited Europe during the year were Mrs. W. W. Naumburg who continued her work in European museums, and Rev. J. J. Murray who was engaged in special studies at Oxford.

Coming nearer home Prof. A. O. Gross accompanied the Bowdoin-MacMillan Expedition to the Arctic, A. A. Allen together with several assistants visited Churchill on Hudson Bay where investigations were carried on during the summer, and George M. Sutton and H. S. Swarth spent several months in different parts of British Columbia.

In the West Indian region James Bond spent about a month in the spring on the Isle of Pines.

In Central America, Mrs. M. E. M. Davidson worked several months in the Chiriqui region in Panama and Costa Rica, and E. R. Blake collected for the Field Museum in the highlands of Guatemala.

In South America, M. A. Carriker accompanied by his son, left for Bolivia in June for his fifth expedition to the Andean region on behalf of the Academy of Natural Sciences of Philadelphia.

In the South Pacific the Whitney Expedition has continued its investigations, and recently J. P. Chapin and F. L. Jaques sailed from San Francisco in the yacht 'Zaca' for a cruise of several months to the Galapagos and some of the islands of the South Pacific.

In Asia Dr. Hugh M. Smith, Fisheries Adviser to the Siamese Government, has concluded his work in Siam for the U. S. National Museum.

Richard Archbold and A. L. Rand have returned from New Guinea with a valuable collection of mammals and birds for the American Museum of Natural History.

Finally, in Africa, Dr. Thomas Barbour visited Capetown and following up the east coast returned via the Red Sea. W. R. Boulton of the Field Museum, recently returned from a trip which included crossing the Sahara Desert from Dakar in Senegal to Timbuktu, a descent of the Niger River to the coast and a visit to Mount Cameroon in Nigeria. James A. G. Rehn left for Africa in June where he will continue work until the close of the year, in the interests of the Philadelphia Academy.

*Papers of the 1933 Meeting:*—Of the seventy papers presented at the Semi-Centennial meeting, apparently less than one fourth have thus far been published, eleven in 'The Auk' and five elsewhere.

The following list of titles is given in the form in which the papers were finally published:

Those which appeared in 'The Auk' were:

- No. 2. W. E. Saunders' 'Losing the Bird Songs.'
- No. 3. H. C. Bryant's 'The First Recorded Lists of Birds in the United States.'
- No. 8. A. A. Allen's 'Sex Rhythm in the Ruffed Grouse (*Bonasa umbellus* Linn.) and Other Birds.'
- No. 12. R. T. Moore's 'The Sangay Labyrinth of Ecuador and Its Fauna.'
- No. 19. Mrs. E. S. Wilson's 'Personal Recollections of the Passenger Pigeon.'
- No. 22. Henry Mousley's 'The Earliest (1805) Unpublished Drawings of the Flexibility of the Upper Mandible of the Woodcock.'
- No. 26. L. W. Wing's 'Migration and Solar Cycles.'
- No. 31. Mrs. E. M. B. Naumburg's 'Rediscovery of *Rhopornis ardesiaca*.'
- No. 32. F. M. Chapman's 'Further Remarks on *Quiscalus aeneus* × *Quiscalus quiscula*' (a plea for more material).
- No. 59. Mousley's 'Study of the Home Life of the Short-Billed Marsh Wren' (*Cistothorus stellaris*).
- No. 65. Bowles and Decker's 'Swainson's Hawk in Washington State.'

## Papers published elsewhere were:

- No. 13. Chapman's 'A Season's Bird Guests,' in *Natural History*, Jan.-Feb. 1934.  
 No. 21. R. C. Murphy's 'Stray Sea Birds and Atlantic Storm Tracks,' in *Geographical Review*, Jan. 1934, pp. 151-152.  
 No. 45. H. F. Lewis' 'Recent Developments in Waterfowl Conservation in Eastern Canada,' in the *Canadian Field-Naturalist*, XLVIII, No. 2, pp. 25-28, Feb. 1934.  
 No. 52. F. C. Lincoln's 'Restocking Waterfowl Marshes with Hand-reared Ducks,' under the title 'Controlled Raising of Black Ducks,' in *American Game*, May-June, 1934, pp. 39, 45-46.  
 No. 63. J. T. Nichols' 'Distribution and Seasonal Movements of the House Sparrow,' in *Bird Banding*, V, pp. 20-23, Jan., 1934.

## DECEASED MEMBERS.

- RUTHVEN DEANE,<sup>1</sup> Fellow, died in his 83d year at Chicago, Ill., March 20, 1934.  
 EDWARD WILLIAM NELSON,<sup>2</sup> ex President, aged 79, died at Washington, D. C., May 19, 1934.  
 ROBERT WILSON SHUFELDT,<sup>3</sup> Founder and Retired Fellow, aged 83, died at Washington, D. C., January 21, 1934.  
 CHARLES WENDELL TOWNSEND,<sup>4</sup> Fellow, aged 74, died at Beacon Hill, Mass., April 3, 1934.  
 OTTO WIDMANN,<sup>5</sup> Fellow, aged 92, died at St. Louis, Mo., November 26, 1933.  
 PERCY EVANS FREKE,<sup>6</sup> Corresponding Fellow, died in his 87th year at South Point, Folkstone, England, March 20, 1931.  
 JOHN HOOPER BOWLES, Member, died in his 59th year at Tacoma, Wash., February 2, 1934.  
 ELON HOWARD EATON, Member, aged 67, died at Geneva, N. Y., March 27, 1934.  
 ROBERT HENRY WOLCOTT,<sup>7</sup> Member, aged 65, died at Lincoln, Neb., January 23, 1934.  
 MRS. MABEL OSGOOD WRIGHT,<sup>8</sup> Member, aged 75, died at Fairfield, Conn., July 16, 1934.  
 EDWARD JOHNSON BROWN,<sup>9</sup> Honorary Life Associate, aged 67, died at Eustis, Fla., February 14, 1934.  
 HENRY CLINTON BURGESS, Associate, died at Canandaigua, N. Y., October 22, 1934.  
 WILLIAM LEWIS BURNETT, Associate, died in his 65th year at Fort Collins, Colo., July 5, 1934.  
 GEORGE FRANKLIN CLINGMAN, Associate, aged 75, died at Chicago, (?) Ill., February 3, 1933.  
 MRS. ELIZABETH BRAXTON DAVENPORT, Associate, aged 89, died at Brattleboro, Vt., August 28, 1934.  
 REUBEN NELSON DAVIS,<sup>10</sup> Associate, died in his 67th year at Dunmore, Pa., January 28, 1934.

<sup>1</sup> For obituary notice, see 'Auk,' LI, p. 282.<sup>2</sup> " " " " " " LI, pp. 431-432.<sup>3</sup> " " " " " " LI, pp. 282-283.<sup>4</sup> " " " " " " LI, p. 432.<sup>5</sup> " " " " " " LI, p. 130.<sup>6</sup> " " " " " " LI, pp. 562-563.<sup>7</sup> " " " " " " LII, this issue.<sup>8</sup> " " " " " " LI, pp. 564-565.<sup>9</sup> " " " " " " LI, pp. 565-566.<sup>10</sup> " " " " " " LI, pp. 288-289.

RICHARD THORNTON FISHER, Associate, died in his 58th year at Petersham, Mass., June 9, 1934.

RICHARD GILLESPIE,<sup>1</sup> Associate, aged 64, died at Bay City, Mich., March 10, 1934.

BENJAMIN TALBOT BABBITT HYDE, Associate, of Sante Fe, N. M., died January 27, 1933.

CHARLES THOMAS METZGER, Associate, aged 69, died at Chicago, Ill. in 1934.

ROBERT OWEN MERRIMAN, Associate, aged 52, died at Kingston, Ont., October 12, 1934.

FREDERICK POMEROY PALEN, Life Associate, died in his 62d year at New York City December 2, 1933.

JESSE LOWE SMITH, Associate, died in his 65th year at Highland Park, Ill., April 21, 1934.

ISAAC SPRAGUE, Associate, aged 74, died at Wellesley Hills, Mass., January 9, 1934.

ARTHUR PERCIVAL STUBBS,<sup>2</sup> Associate, died in his 67th year at East Lynn, Mass., July 19, 1932.

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<sup>1</sup> For obituary notice, see 'Auk,' LI, p. 567.

<sup>2</sup> " " " " " LI, p. 566.



REPORT OF THE COMMITTEE ON BIOGRAPHY AND  
BIBLIOGRAPHY—THE DEANE COLLECTION

BY T. S. PALMER.

THE Committee on Biography and Bibliography, first appointed in 1919, has been more or less active during the past fifteen years in spite of the fact that it has suffered greater losses in its personnel than any other Committee of the Union. Death removed two of its most important members, Charles W. Richmond in 1932, and Ruthven Deane in 1934 and although these gaps have not been filled the Committee has continued its work. During the year 1934 it confined its efforts largely to coöperation with the Index Committee, in reading proof and securing data necessary to complete certain entries in the 'Ten Year Index of The Auk.' It has also co-operated with the Editor of 'The Auk' in securing data for suitable notices of deceased members. Most of the biographical sketches which have appeared in the current volume were prepared by or through the solicitation of members of the Committee.

Two months before his death Mr. Deane presented to the Library of Congress a collection of portraits of ornithologists which he had brought together during a period of nearly fifty years. This collection comprising some 1800 items and portraits of 1030 individuals contains a practically complete series of pictures of Fellows of the Union, most of the Foreign Fellows and Members and many of the more prominent Associates. It was presented on condition that it should be kept accessible to any persons interested in it and should be indexed with information sufficient to bring out the identity of each individual. A brief description of its installation, plan of indexing and directions for securing copies of pictures was published in 'The Auk' for July, 1934 (pp. 436-437).

Included in the collection were a number of group pictures taken at various sessions of the American Ornithologists' Union and covering a period of half a century. This series of pictures, twenty in number, has been completed and copies made especially for the meeting; keys have been prepared for each of the groups and an index to include each individual in all of the group pictures is in course of preparation. The number of members included in the various groups probably exceeds six hundred.

One of the earliest projects undertaken by the Committee was the preparation of a catalogue of published portraits of ornithologists. For several years the Council of the Union continued small appropriations for printing this catalogue but it soon became evident that the work was too incomplete to warrant publication in its present form. Recently the Committee has

offered to place at the disposal of the Library of Congress any or all of the material collected in this connection if the Library will furnish the necessary clerical assistance to incorporate the references in the Deane Collection in the same form as other entries already included therein.

It is hoped that the Deane Collection may be extended still further by the addition of other references to published portraits of ornithologists from the earliest times down to date. Many of the published portraits are already in the Library of Congress but almost impossible to locate through lack of references. The plan thus outlined will include an index of several thousand portraits, published or unpublished, of the principal authors, workers, field collectors, explorers and museum officials who have contributed to the literature of ornithology. With the index will be certain biographical data not generally accessible which will enable readers to refer at once to important facts relating to the activities of the principal workers in this subject. So far as known no such project has been attempted elsewhere and in developing the plan the Committee hopes to have the generous support of the members of the Union. This can be given by depositing in the Library copies of their own photographs or published portraits, or furnishing references to places where such portraits have been published. Particularly is it desired that the series of workers in each State should be as complete as possible. It should contain not only the pictures of the author of each important work on birds, but, when possible, copies of portraits taken about the time the author's chief work was published and showing also how he looked in youth as well as later in life. Arrangements have been made whereby copies of any of these pictures may be obtained at cost of photographic reproduction, on application to the Chief, Division of Fine Arts of the Library of Congress, Washington, D. C., and copies of the data on the index cards and keys to the A. O. U. group pictures may be had on application to the same source.

REPORT OF THE COMMITTEE ON BIRD  
PROTECTION.

YOUR Committee on Bird Protection has considerable to report on trends affecting bird status and on constructive legislation.

No reports of serious nature of the destruction of bird life other than the continued drought have come to our attention. Perhaps emergency activities have drawn attention away from the usual competitive campaigns waged against hawks and owls. At any rate there appears to have been less publicity given such campaigns during the past year. We shall continue to be alert to discourage such activities.

Meanwhile, better protection for Hawks and Owls was secured in New York where the legislature provided protection for five beneficial Hawks and in New Jersey where protection was extended to the Duck Hawk. The National Association of Audubon Societies on April 9, 1934, passed strong resolutions favoring protection of Hawks and Owls and reported that a publication on the Hawks of North America treating of their distinguishing characteristics and feeding habits was under preparation as a result of a patron's contribution. The Annual Report of the Hawk and Owl Society indicates aggressive work. A summary of State laws relating to birds of prey given in the report shows that none, or very limited, protection is afforded Hawks in twenty-five states. With hardly half of the states on the right side of the ledger there is room for plenty of work in order to reach the goal.

Upland game birds may in some places show a favorable trend but the depletion of Ruffed Grouse which began last year is in full swing.

The status of the Trumpeter Swan remains favorable. A special publicity campaign was made this Fall by the National Park Service to secure the cooperation of Montana and Idaho hunters in protecting this species.

A recently published report relating to duck sickness indicates progress in the solution of this baffling problem.

Recognizing the need of general public education regarding the economic and esthetic values pertaining to birds, we are forced again to call attention to lessened activity of this type due to the depression. Nature studies have been curtailed in many schools. Every bird student must lend his support locally to an insistent demand for reinstatement and increased support of nature education.

Additional evidence that lighthouses still constitute a menace to bird life comes from the coast of Maine. Mr. Arthur Stupka, Park Naturalist of Acadia National Park, having solicited the aid of fifteen lighthousekeepers along a coast line of a hundred miles, has compiled records from the dead

birds sent in. Of 32 birds meeting death at Mt. Desert Lighthouse on May 5-7, 1934, 23 were Savannah Sparrows, 4 Yellow Palm Warblers, 2 Myrtle Warblers and one each of Chimney Swift, Swamp Sparrow, and Hermit Thrush. A collection made on May 15-17 netted only 12 with two each of Savannah Sparrow and White-throated Sparrow and one each of Nashville Warbler, Yellow Warbler, Magnolia Warbler, Leach's Petrel, Hermit Thrush, Flicker, Purple Finch and Northern Phalarope. On May 17, Libby Islands Lighthouse yielded one each of five different kinds of warblers and a Swamp Sparrow. Returns from other lighthouses were negligible.

We are glad to report that for some unknown reason losses of bird life at the Washington Monument the past year have been less than in previous years. The scaffolding recently erected around the monument may have some effect on the usual losses during the present Fall migration.

Bird banding continues to bring useful data on migration which gives a dependable basis for protective legislation and administration.

As an offset to destructive tendencies and adverse conditions, including the drought, the past year has seen many advances along conservation lines with the Government outlining long time plans and expending unusual sums for the improvement of wildlife conditions. The Congress passed the duck stamp law assuring a federal income for use by the Biological Survey in establishing waterfowl sanctuaries.

Under the Civil Works Program many a marsh was restored and made fit for waterfowl. The Emergency Conservation Work camps have improved streams, fields and forests to bring back game and instituted helpful erosion control. Early criticism of cleanup activities has lessened as it became evident that mistakes were corrected and wildlife restoration programs came to light. The National Park Service, anxious to see that no emergency activities injured habitats for wildlife, appointed fifteen naturalist foremen to check work done and to advise on methods of improving conditions for wildlife. Typical of improvement activities are the "tanks" constructed in the more arid portions of Grand Canyon National Park which are designed to catch and hold rain water for the benefit of animal and bird life, and the improvement of Roaches Run along the Mt. Vernon Highway to make a suitable refuge for ducks and shorebirds. The latter project not only involved labor from a nearby E. C. W. Camp but the expenditure of a considerable sum to fence a portion of the area against poachers.

Public Works funds have likewise furnished a long awaited opportunity to acquire refuge areas and improve conditions in many places. A series of projects will result in checking pollution of rivers and bays with consequent improvement for waterfowl.



The following advances have been made in the prevention of oil pollution:

- (1) All new American warships are being equipped with oil separators.
- (2) The need for international action on oil pollution has been placed before the League of Nations by the British Government.

Perhaps the most permanent accomplishment will come from studies and activities connected with land utilization. The idea that some lands are better utilized as game breeding grounds and refuges has gained a firm foothold as we have noted the adverse results of the drainage of marshes. With this idea established we may now look forward to the saving of many threatened areas and the restoration of the more important ones that have been destroyed by commercial incentive. The report on National Resources, now in preparation, will help draw attention to large-scale planning for restoration of suitable breeding and feeding grounds of wildlife.

Of interest to every bird protectionist is the reorganization of the U. S. Biological Survey in order that more effective service may be rendered. Under new leadership a revised program has been instituted. The plan involves the building of the Survey into a better consolidated technical research and wildlife management bureau with an improved field organization, more emphasis on police work, more on education. About three times as many law enforcement officers are to be employed and they will constitute a mobile force. Major units are entitled Game Management Division and Wildlife Research Division. A fund of several million dollars also has been allocated to the Bureau from emergency funds to start the restoration program suggested by the President's Special Committee on Wildlife Restoration and we can look forward, therefore, to wide extension of refuge and breeding areas for wildfowl.

The annual kill of game birds by hunters continues to present one of the most serious problems facing conservationists. It is somewhat encouraging to note that the bag limits on certain imperiled species of ducks have this year been reduced, but all conservationists should note the increasing length of the list of imperiled species, indicating that effective protection is lagging in spite of protective efforts. The species for which the bag limit was reduced this year include the canvasback, redhead, both scaups, ringneck, green-winged teal, cinnamon teal, shoveller, and gadwall, and total protection is given wood, ruddy, and bufflehead ducks, Ross' goose, both swans, and brant in the Atlantic seacoast region.

The outstanding menace of baiting continues, though the baiting of mourning doves has been prohibited and steps have been taken to regulate the practice as regards waterfowl. Shooting waterfowl, on baited premises, is allowed now only under permit issued without charge by the Bureau of Biological Survey and revocable by the Secretary of Agriculture. Under these permits the birds may not be shot after 3 p. m. nor while resting on



water or land, and each permittee must agree to keep an accurate record and report to the Biological Survey the number of persons shooting on the premises and of the species and number of each species killed, kinds of food employed, and other statistics. It is anticipated that these data will allow a better appraisal of the effect of baiting on waterfowl. Conservationists will hope, and should exert their influence toward the end, that the temporizing action of this year is the first step toward meeting the baiting problem adequately.

The use of live decoys, the subject of previous recommendations of your committee, is still permitted under the Federal regulations. This disastrous practice, rivaling the abuses of baiting, demands the strongest possible opposition of all conservationists.

As a measure to reduce the number of waterfowl killed this year, the number of shooting days were reduced to 30, but unfortunately this action was accompanied by a rest-day provision permitting each State to select its shooting days and spread them over a period that in some States is as long as 15 weeks. All who have the welfare of wildlife at heart will view with alarm the appearance and spread of this new type of game law, known as the staggered system. Its application to waterfowl hunting is especially deplorable, but it is also being adopted by States in their regulation of the hunting of other species. Pennsylvania has adopted it for the second year, providing for shooting of grouse, quail, ringneck pheasants, and wild turkeys on Mondays, Wednesdays, and Saturdays, plus holidays. The rest-day system, of days of rest alternating with days of shooting, has often been used as a device for increasing the kill, its effect on the game being a resultant taming in periods of no shooting, worst when accentuated by baiting. This practice must be condemned.

Though we rejoice at the tangible evidences of progress summarized in the early parts of our report, we deplore the continuing adverse conditions affecting our bird fauna and therefore urge each member of the American Ornithologists' Union to give heed to the evidence of danger and give increased individual support to the cause of bird protection in order that such gains as are herein enumerated may be consolidated.

Mrs. F. M. Bailey

H. C. Bryant, *Chairman.*

A. C. Bent

B. H. Christy

E. A. Preble

W. E. Saunders

## GENERAL NOTES.

**Common Loon in Illinois in July.**—An immature Common Loon (*Gavia immer* subsp. ?) was killed July 12, 1934, on the reservoir of the C. B. & Q. Ry., one mile from Franklin, Morgan County, in central Illinois. It was killed by a fisherman to prevent its further feeding on game fish with which the reservoir had been stocked. Upon examination the bird's stomach was found to contain three small crappies, one three-inch large-mouth black bass, and numerous shellfish. The incident was reported to the writer by Mr. Richard Allyn of Waverly, Ill., who observed the bird daily July 2-12. The skin, he stated, had been hopelessly mutilated, but the skeleton, unfortunately minus skull and tarsal bones, he retrieved on a later date and sent to the writer. He in turn mailed it to Dr. Alexander Wetmore, who identified it. Records of the Common Loon summering south of its breeding range exist for coastal regions: on the Atlantic (as far south as North Carolina) and on the Gulf of Mexico (Mississippi). However, the writer believes that he presents the first record of this sort from the interior, and also the first Illinois summer record of this species since the pre-1900 days when it nested in the northeastern part of the state.—CHAS. THEO. BLACK, 407 E. Daniel St., Champaign, Ill.

**Leach's Petrel in the West Indies.**—In an examination of the available literature, I have been able to discover but two records of the occurrence of Leach's Petrel (*Oceanodroma leucorhoa leucorhoa*) in the West Indian region. Both were recorded by Dr. Alexander Wetmore. (Condor, 1923, p. 170; and U. S. Nat. Mus. Bulletin 155, 1931, p. 63.) A third record which could almost be considered as West Indian is that of R. C. Murphy (Auk, 1915, p. 171), who observed one May 4, 1913, a considerable distance east of Barbados, just on the edge of the West Indian region. With these records in mind, the writer has been watching for this species in West Indian waters in recent years, and his efforts were first rewarded in 1932 during a voyage on a freighter from Arroyo, P. R., to Galveston, Texas. On May 27 about ten of these Petrels followed the boat off the south coast of Puerto Rico, beginning at a point about three miles south of Parguera. Another was seen in Cuban waters south of Dry Tortugas, Florida, on June 1, and several were seen in the Gulf of Mexico on June 2 and 3 to within 200 miles of Galveston. At about this point there was an abrupt change in the Petrel fauna, those seen nearer to the Texas coast being all Wilson's Petrel (*Oceanites oceanicus*), whereas none of these had been seen earlier in the voyage. In 1934 the writer was a passenger on the S. S. "Almeria Lykes," which anchored for over a week a half mile off Cayo Francés, Cuba. On June 20 and 21 about eight Leach's Petrels were feeding around the ship, and one of these was collected. It proved to be a female, with a wing length of 151 millimeters. It showed no evidence of the proximity of the breeding season. On the basis of the records now available it seems possible that the common Petrel in the West Indies during the summer may be Leach's Petrel, although further records are necessary to complete our information on this subject.—STUART T. DANFORTH, University of P. R., Mayaguez, Puerto Rico.

**Double-Crested Cormorants Breeding in Posey County, Indiana.**—On my trip to Hovey's Lake in Posey County, Indiana, on September 9, 1929, I collected two specimens of the Cormorant then present in considerable numbers upon the lake. These were submitted to Dr. Amos W. Butler for identification and were determined by him to be Double-crested Cormorants (*Phalacrocorax auritus auritus*).

A number of authorities have in past years given it as their opinion that the Cormorants of southern Indiana, being found there throughout the summer months, breed in the heavy timber of cypress, pecan, oak and hickory bordering this largest body of water in the southernmost county. However, no definite evidences of their breeding, so far as I can find, were given.

During field excursions made there in 1929, I found what I believe to be a single nest of a Cormorant in a tree on the western edge of the lake. The nest, placed twenty-five feet up in the tree, was empty. It was the size of a Crow's, was made of sticks and was lined with Gull feathers.

Then on June 16, 1934, I observed two immature Cormorants a little more than half grown, perched in a dead cypress tree standing out in the lake. While I watched the parent bird flew towards these young ones, perched beside and fed them.

The flock of Cormorants usually remains until November, the latest date at which they were observed being December 1 (1932).—S. E. PERKINS III, *Indianapolis, Ind.*

**On the Genera *Oligocorax* and *Miocorax*.**—Dr. Kálmán Lambrecht in his great work on fossil birds (*Handbuch der Palaeornithologie*, 1933, pp. 290–295, fig. 104) has divided the fossil Cormorants into several genera on the form of the intermuscular line on the anterior face of the coracoid. According to his treatment the fossil species included in our North American fauna would stand as follows: *Oligocorax marinavis* (Shufeldt), *Oligocorax mediterraneus* (Shufeldt), *Miocorax femoralis* (Miller), *Phalacrocorax idahensis* (Marsh), *Phalacrocorax macropus* (Cope), *Phalacrocorax auritus* (Lesson).

Recently in connection with work on the A. O. U. 'Check-List' I have had occasion to examine the characters of the new genera proposed, having available for comparison in the osteological collections of the U. S. National Museum representation of most of the living species of Cormorants of the World. From study of this series of skeletons I am not able to substantiate Lambrecht's opinion that the form of the intermuscular line on the coracoid is of generic significance.

Peters (Check-List of Birds of the World, vol. 1, 1931, pp. 85–95) has recognized three groups among living Cormorants, namely, *Phalacrocorax*, including all of our American species, *Haliëtor* for the small, long-tailed Cormorants, and *Nannopterum* for the flightless form of Narborough and Albemarle Islands in the Galápagos. There is no definite separation possible on the character under discussion in these three groups as the various modern species show considerable variation, the variation being such as to bridge the gaps that seem to separate the fossil forms.

With regard to the fossil forms the intermuscular line in *Haliëtor africanus* is similar to that of *Phalacrocorax miocaenus* which Lambrecht places in his genus *Oligocorax*, while in *Haliëtor melanoleucus* it varies toward the form found in those species that Lambrecht considers true *Phalacrocorax*. If the form of this line is to be accepted in determining genera then *miocaenus* could be placed in *Haliëtor* on its resemblance to *africanus*, but when compared with *H. melanoleucus* would go in *Phalacrocorax*.

As for *Phalacrocorax femoralis* Miller (illustrated in *The Condor*, 1929, p. 168, fig. 58) which Lambrecht includes in his genus *Miocorax*, this species has the intermuscular line similar to that of modern *Phalacrocorax punctatus* and *Phalacrocorax carbo sinensis*. It will be recalled that *P. carbo* is the type of the genus *Phalacrocorax*.

With due respect for Dr. Lambrecht's opinion, I am forced to conclude that so far as North American fossils are concerned, at least, the genera *Oligocorax* and *Miocorax* are not valid so that the species included in our fossil list should remain in

the genus *Phalacrocorax* as in the fourth edition of the A. O. U. 'Check-List.'—ALEXANDER WETMORE, U. S. National Museum, Washington, D. C.

**The Status of the Great Blue Heron in the West Indies.**—The West Indian Great Blue Heron (*Ardea herodias adoxa* Oberholser) is usually considered to be resident throughout this region as well as on islands in the southern Caribbean, including Trinidad and Curaçao, from which latter island the type was described. After many years study of birds on these islands, I have come to believe that the Great Blue Heron breeds in the West Indies only in Cuba, the Isle of Pines and Jamaica, where it is resident. It may occasionally wander to other islands, but I believe that the great majority, if not all of these Herons that are found elsewhere in the West Indies, are migrants from North America (*A. h. herodias*). Among these I would place Oberholser's type of *A. h. adoxa*. All Great Blue Herons that have been recorded in the West Indies have been hitherto regarded as *adoxo*, with one exception, that being a bird that had been banded at Hat Island, Green Bay, Wis.<sup>1</sup> The presence of these Herons on Hispaniola and other islands during the spring and summer months is no sure criterion for considering them as residents, a Black-crowned Night Heron banded at Barnstable, Mass., having been recovered in Haiti on May 21, 1928! Furthermore, according to Gundlach, this species breeds during the winter months from November to January. West Indian specimens of the Great Blue Heron that I have examined, including two that I secured on the Isle of Pines, can be matched perfectly with specimens of *A. h. herodias*. Although they appear to average paler above, some specimens of the northern bird are as pale on the upper parts as any that I have examined from the West Indies. Oberholser states that *A. h. adoxa* is "of somewhat smaller size," a statement scarcely borne out by his measurements (in millimeters), which are as follows:

	Wing	Tail	Exposed Culmen	Height of bill at base	Tarsus	Middle Toe
<i>A. h. herodias</i> . . . .	433-480	159-187	123-151.5	23.5-31.3	157-205	93-115
<i>A. h. adoxa</i> . . . . .	430-468	168-185	121-150	24-30	162-180	92-113

It will be observed from these measurements that any difference in size is insignificant and, as I have already mentioned, the paler coloring of the upper parts is not a constant character. West Indian Great Blue Herons should therefore be regarded as *A. h. herodias*, since at present there is no sure way of distinguishing two forms. This is not infrequently the case when subspecies are described merely on average characters.

Perhaps the taking of breeding examples in the West Indies may show that a race distinct from *herodias* inhabits this region, but at present there is no reason to believe that this is the case, although the form occurring on the islands is certainly distinct from *A. h. wardi* of the southeastern United States.

The only definite records of breeding colonies of the Great Blue Heron in the West Indies are from Cuba and Jamaica, and it is interesting and rather significant that these islands are in the restricted West Indian range of *Ardea occidentalis repens* Bangs and Zappey. These two birds are frequently seen in pairs on these islands and behave precisely alike. In spite of Mr. Holt's admirable report on the specific distinctness of *A. occidentalis*,<sup>2</sup> it is my opinion that this is merely a local color phase of *A. herodias*, comparable with the melanistic phase of the Sparrow Hawk, and the

<sup>1</sup> See Auk, Vol. XLIX, Oct. 1932, pages 457-458.

<sup>2</sup> Sci. Pub. Cleveland Mus. Nat. Hist. Vol. I, No. 1, 1928, pages 1-35.



rufescent phase of the Little Green Heron in Cuba. It may also be mentioned that the Great White Heron of the West Indies differs from the northern form in being smaller, just as does the West Indian Great Blue Heron from *A. h. wardi*.—JAMES BOND, *Academy of Natural Sciences, Philadelphia*.

**American Egret and Mississippi Kite in Douglas County, Kansas.**—On August 8, 1934, the writer saw an American Egret (*Casmerodius albus egretta*) on the Kansas river three miles north of Lawrence. Although the bird was across the river, its large size, almost as large as the Great Blue Heron, was diagnostic. As long as I was moving the bird paid little attention to me, but when I sat down in some bushes to watch it, it immediately took wing and flew with slow wing strokes for about half a mile. When I followed, it flew again, and disappeared up the river. As far as I know, there is only one other record for the American Egret at Lawrence—one taken on August 15, 1872, and now in the museum collection.

An immature female Mississippi Kite (*Ictinia mississippiensis*) was shot by Fred Hastie at his home seven miles southwest of Lawrence, on August 22, 1934. It was sitting quietly in the dead branches of a tall cottonwood tree. This is the fourth record for Douglas County. There are several previous records: three taken on September 15 and 16, 1907 (Wetmore, *Condor*, Vol. 11, 1909. p. 157), one, on July 26, 1909 (Bunker and Rocklund) and a pair in the collection of Baker University, with a nest and eggs, taken near Baldwin, June 11, 1906. This is believed to be the northernmost breeding record for the species.—W. S. LONG, *Museum of Birds and Mammals, Lawrence, Kansas*.

**First Occurrence of the Reddish Egret (*Dichromanassa r. rufesens*) in South Carolina.**—On January 15, 1934, on his plantation "Mulberry," Cooper River, S. C., Mr. Clarence E. Chapman, of New York, saw two specimens of this species and watched them for forty minutes. Seated in a duck blind in one of his rice fields, Mr. Chapman studied every detail of the strangers, sometimes at a range of from fifteen to twenty feet. He knew what they were at once, and his vivid description of them leaves nothing to be desired. One was in the dark, and the other the light phase of plumage.

They were fishing, preening and resting, and finally disappeared into the sawgrass. Though realizing their rarity and with a gun in his hands at the time, Mr. Chapman did not attempt to take either. He was perfectly convinced of their identity and so is the writer. This is an addition to the avifauna of South Carolina.—ALEXANDER SPRUNT, JR., *R. F. D. No. 1, Charleston, S. C.*

**Wood Ibis (*Tantalus loculator*) in Oklahoma.**—On August 22, 1934, I saw a single Wood Ibis near Spiro, Oklahoma, headed for the Arkansas River. Next day James Priest and I found seven of the birds sitting on driftwood left on a sand bar. We observed them at rest and in flight through a small telescope. All appeared to be in immature plumage. Their white plumage, grayish fuscous head, large decurved bill, flight with extended neck, black primaries and secondaries and tail were all clearly seen.

The birds remained in the vicinity for at least five days and one was secured and photographs submitted to the editor of 'The Auk.'—DAN A. REDURNE, *Norman, Oklahoma*.

**Notes on the Roseate Spoonbill on the Gulf Coast.**—During his field work of last spring for the National Association of Audubon Societies the writer made a particular point of keeping an accurate count of Roseate Spoonbills observed. On



April 10-15, 1934, on the Gulf Coast of southwestern Florida, flocks of this species were seen at two locations: Alligator Bay and the Shark River Rookery. A total of 90 Spoonbills was counted, 64 on Alligator Bay, and two flocks totalling 26 birds flying over the rookery. No nests were observed in the Shark River Rookery, although it was reported in 1933 that four pairs nested there and 12 pairs in the Lane River Rookery nearby. It has been suggested that no large rookery of this species exists in Florida, but that the Spoonbills confine their nesting activities to small groups scattered among the heronries in the mangrove swamps.

From Galveston Bay to lower Laguna Madre, on the Texas Coast, Spoonbills were observed at seven locations and a total of 879 individuals was counted. The counts were made as follows: Vingt'un Island, Galveston Bay, 200; San Antonio Bay, 4; Second Chain-of-Islands, San Antonio Bay, 300; Aransas Bay, 200; Big Bird Island, Laguna Madre, 19; Flats north of the mouth of Arroyo Colorado, Laguna Madre, 100; Green Island, Laguna Madre, 56.

Vingt'un Island and the Second Chain-of-Islands are both nesting colonies, under guard of Audubon wardens. Other colonies may exist along the coast, but their location has not been fully determined.

A search was made for the Spoonbill colony formerly under guard in Cameron Parish, Louisiana, but it was not found this season.—ROBERT P. ALLEN, *National Association of Audubon Societies*, 1775 Broadway, New York, N. Y.

**European Widgeon at Newport, R. I.**—On November 4, 1934, I positively identified a pair of European Widgeons (*Mareca penelope*) at Gardiner's Pond, Middletown, R. I., associated with numerous Baldpates (*M. americana*). The drake was at once distinguished by his buffy crown and, as he came closer, I could see the dark buff of the lower head and neck. The patch of green about the eye was darker and not so regular in outline as in the Baldpate. The back and sides were gray, distinguishing the bird from the more chestnut Baldpate.

The female was of the same size as the female Baldpates but decidedly grayish in color, whereas the latter tend to brownish.

I also observed a Ringneck (*Nyroca collaris*) apparently a male and completely out of the eclipse plumage.—JOHN J. LYNCH, 13 Harrison Ave., Newport, R. I.

**A Blue Goose From Georgia.**—An immature Blue Goose (*Chen caerulescens*) collected November 1, 1934, about one mile east of Savannah, seems to be the first specimen from the state. The sight of this bird settles to my satisfaction the identity of a Goose seen in flight, in about the same locality, on November 4, 1931. The bluish-gray secondaries, which are quite prominent in flight, seem to distinguish this species from the immature White-fronted Goose (*Anser albifrons*), the only other Goose at all similar in color.

These two, with the sight record of three birds near the river mouth previously recorded (Auk, 1930, p. 577), apparently provide the only accounts of the species in the state.—IVAN R. TOMKINS, *U. S. Dredge Morgan*, Savannah, Ga.

**The Incubation Period of the Black Vulture.**—Burns (Wils. Bull., Vol. 33, June, 1921) lists the incubation period of the Black Vulture (*Coragyps atratus atratus*) as thirty days. In 1933 Harry C. Monk and the writer kept a brooding bird of this species under observation near Nashville, Tennessee, for thirty-five days before hatching was completed. In a letter to the writer, H. O. Todd, Jr., of Murfreesboro, Tennessee, states that he also observed a thirty-five day incubation period. The nest watched by Todd contained two eggs on April 10, 1933, which hatched "in exactly five weeks."

The nest observed by Monk and the writer was first noted on May 20, 1933, the bird brooding two eggs in a hollow oak stub. On June 25 the stub contained a chick possibly a day old, and a pipped egg. It was not possible for the observers to visit the nest again until July 2, when it contained two lively young Vultures. There is little chance that the eggs were retarded in hatching by chilling, since the temperature of the region was high throughout the period of incubation. In the thick, close woods where the stub was located, the temperature frequently must have reached 100° F.

In a nest observed in 1932, two full days elapsed between the laying of the first and second eggs, and the bird brooded closely from the laying of the first.—COMPTON CROOK, *Dept. of Biology, Boone Training School, Boone, North Carolina.*

**Bald Eagle Incubates Horned Owl's Egg.**—On January 5, 1930, I flushed a Bald Eagle (*Haliaeetus leucocephalus leucocephalus*) from its nest, twenty feet up in a small pine. Climbing up to the nest I was surprised to find that it contained one fresh egg of the Great Horned Owl (*Bubo virginianus virginianus*) and no eggs of the Eagle.

Revisiting the nest on January 19, with W. H. Nicholson, we again flushed the Eagle, and again there was only the Owl egg, by this time two weeks advanced in incubation.

The nest was on Merritts Island, Brevard County, Florida.—J. C. HOWELL, *Rollins College Museum, Winter Park, Florida.*

**Note on the Breeding Range of the Black Pigeon Hawk.**—Ornithologists apparently agree that the Black Pigeon Hawk (*Falco columbarius suckleyi*) breeds somewhere in British Columbia. The A. O. U. 'Check-List' (1931, p. 76) tells us that it nests "apparently in western British Columbia and perhaps on Vancouver Island." Taverner (*Birds of Western Canada*, 1926, 209) calls it a "dark form of the west coast." Brooks and Swarth (*A Distributional List of the Birds of British Columbia, Pacific Coast Avifauna No. 17*, 1925, 58) say: "Presumably the summer habitat comprises the coastal region west of the Cascades and coast ranges on the mainland, the adjacent small islands, and Vancouver Island." To the best of the writer's knowledge, however, the nesting of the bird has not actually been demonstrated in the above-mentioned region.

During the spring of 1934 Mr. John B. Semple, of Sewickley, Pennsylvania, trustee of the Carnegie Institute of Pittsburgh, invited me to join his ornithological expedition to British Columbia. We were in the province for two months, centering our activities in the Comox (Vancouver Island), Barriere, Blue River, and Red Pass regions. One of our interesting captures was an exceedingly handsome, breeding male Black Pigeon Hawk, in rich, high plumage, taken on the evening of June 16, at the foot of a well forested mountain about three miles north of the town of Blue River. The gonads were considerably enlarged. Approaching darkness prohibited our making any extended search for the nest. The female was not seen. In the stomach were the remains of a Vaux's Swift (*Chaetura vauxi*).<sup>1</sup>

The town of Blue River is situated at the junction of the Blue and the North Thompson Rivers, far to the eastward of the Cascades and coastal ranges. Our capture of this breeding bird so far inland forces us to the belief that *suckleyi* is not restricted to the coastal region in summer, as has heretofore been supposed; and strengthens our conviction that the adult male taken by Taverner at Oliver, in the

<sup>1</sup> It is incredible that the exceedingly speedy Vaux's Swift is captured regularly by any bird of prey; this record must be considered exceptional until further data are obtained.

southern Okanagan Valley, on June 10, 1922, was not far from its nesting grounds, even though we are plainly told that this was "not a breeding bird" (see Brooks and Swarth, l. c.).—GEORGE MIKESCH SUTTON, *Laboratory of Ornithology, Cornell University, Ithaca, New York.*

**Late Nesting of the Bob-white in North Carolina.**—Having found two nests of *Colinus virginianus* in the North Carolina mountains on dates which seemed to the writer to be somewhat late for this species, he communicated with Mr. H. H. Brimley, of the State Museum at Raleigh, inquiring as to late records for the nesting. Mr. Brimley replied as follows: "We seem to have very few definite records of the nesting of *C. virginianus* in North Carolina. . . . It nests early and late . . . sometimes a brood, almost grown, may be found on November 15 associated with a brood of 'little squealers' just about able to fly." He further states that the State Game Warden informs him that August 16, was the latest date of which he knew, a farmer having flushed Quail from two nests on that date, but "did not ascertain whether the eggs were fresh or far gone in incubation."

In view of the above it seems well to say that the writer was shown a Bob-white nest containing 17 eggs on August 10, 1934, which had been almost overturned by a mowing machine. The eggs would have hatched in another day. On August 27, he collected a set of 11 eggs which were only very slightly incubated. Both of these were found at Blowing Rock, Watauga County, N. C., in the heart of the mountains, at elevations of slightly more than 4000 ft. Mr. Brimley's notes were secured from observations in much lower elevations, and it seems that late August is very late for birds in the mountains. It might be added that this species is abundant in the mountainous sections.—ALEXANDER SPRUNT, JR., *R. F. D. No. 1., Charleston, S. C.*

**Purple Gallinule (*Ionornis martinica*) in Connecticut.**—On October 9, 1934, two birds of this species were identified by Charles W. Vibert, at South Windsor, five miles north of Hartford, in a marsh where the Florida Gallinule breeds and is well-known. At daylight Mr. Vibert was studying two Florida Gallinules when two more Gallinules appeared, and he immediately noticed the difference in their colors. Finally the four birds were within 150 feet, and close together, giving excellent opportunity for careful comparison of the two kinds.

In this same marsh on June 5, 1922, Mr. Vibert and I studied another Purple Gallinule for over a half hour. This enabled Mr. Vibert to recognize the 1934 visitors at once.

Having in mind the three northern records of Purple Gallinules in the October 'Auk' these records in Connecticut seem to be of particular interest.—GEORGE T. GRISWOLD, *47 Willard Street, Hartford, Conn.*

**The Golden Plover near Philadelphia, Pa.**—On November 5, 1934, I found a badly mutilated specimen of a Golden Plover (*Pluvialis dominica dominica*) in Tinicum Township, Delaware Co., Pa., near the southern extremity of the city of Philadelphia. The bird had been killed by a trolley car probably only a day or two previously as no decomposition had taken place. It was exceedingly fat and the whole plumage was saturated with grease. My identification was confirmed by Dr. Witmer Stone who managed to save what was left of the skin and degrease it so that it could be preserved in the local collection of the Academy of Natural Sciences of Philadelphia. The species is of rare enough occurrence in this region to warrant the publishing of this record.—C. BROOKE WORTH, *Philadelphia, Pa.*

**Wilson's Plover at Brigantine, N. J.**—On September 15, 1934, the writer ob-

served a Wilson's Plover (*Pagolla wilsonia wilsonia*) at Brigantine, N. J., following a week of stormy weather. A direct comparison with the Piping and Semipalmated Plovers was obtained but the bird under observation was so unlike them that it could hardly be mistaken by any experienced bird student. It looked somewhat like a dull colored Semipalmated Plover with a large black bill, a distinct light line over the eye and a dark Shrike-like line passing through the eye. The brownish back of the bird was somewhat mottled. The legs were pink compared with the yellow or orange colored legs of the others. No note was heard.

This is the first observation of this species on the New Jersey coast in the writer's experience.—JULIAN K. POTTER, *Collingswood, N. J.*

**Long-billed Dowitcher taken near Toledo, Ohio.**—The Long-billed Dowitcher (*Limnodromus griseus scolopaceus*) was placed by M. B. Trautman in the "Hypothetical List" of his 'Revised List of the Birds of Ohio' published in April, 1932. No specimen or authentic sight record existed for that bird in Michigan according to records obtainable through the Division of Ornithology, Museum of Zoology, University of Michigan. During the summer of 1934, however, the following records show that this form was of fairly common occurrence in the vicinity of Toledo:

July 22. At least two at Erie Marsh, Erie Twp., Monroe Co., Michigan (9 miles N. by N. E. of Toledo, O.). One male bird collected, given to the Museum of Zoology, University of Michigan.

July 26. Waterville Twp., Lucas Co., Ohio. One female collected, given to the Ohio State Museum at Columbus.

July 28. Four in Maumee River, Waterville Twp., Lucas Co., O.

August 12. Four in Erie Marsh, Erie Twp., Monroe Co., Mich. Two females collected, specimens presented to the Museum of Zoology, University of Michigan.

September 2. One in Jerusalem Twp., Lucas Co., Ohio.

Identification of all specimens taken was checked by Mr. Pierce Brodkorb of the University of Michigan. Both *Limnodromus griseus griseus* and *L. g. scolopaceus* were found in the same flock. Length of bill was used as the standard both for sight records and for selecting specimens for collecting.

Whether the drought of 1934 in the West drove these birds east or the seeming rarity of this form is due to a lack of collecting remains to be seen.—LOUIS W. AND BERNARD ROY CAMPBELL, *Toledo, Ohio.*

**Further Notes on the Occurrence of the Hudsonian Godwit (*Limosa haemastica*) in Wisconsin.**—Mr. A. W. Schorger, in his article in 'The Auk' for October, 1934, reports several Hudsonian Godwits from the Madison, Wis., region. He mentioned that there appears to be no other state records for the past thirty years.

I therefore wish to make note of three hitherto unreported specimens in the Milwaukee Public Museum collection. In addition to the male collected on Lake Winnebago, Wis., on June 12, 1934, Mr. Perkins and I collected a male and female on the Bear Bluff marshes of Jackson County, Wis., May 21, 1931, and Mr. Clarence Jung collected a female on May 13, 1933, in Ozaukee Co., Wis.—O. J. GROMME, *Milwaukee Public Museum, Milwaukee, Wis.*

**Marbled Godwit at Pine Point, Maine.**—On August 29, 1934, while walking across a salt marsh east of the railroad embankment at Pine Point, Cumberland, Maine, we saw a number of shore birds feeding at the edge of a small pool. As we approached them, we found a mixed flock of Willets (*Catoptrophorus semipalmatus*



(subsp?) and Black-bellied Plover (*Squatarola squatarola*). Feeding with them were two Marbled Godwits (*Limosa fedoa*). Both the Willet and Plover flew to another part of the marsh as we neared them but the Godwits seemed particularly tame and allowed us to come within fifty feet. We watched them for about a quarter of an hour and at that distance even without our glasses, we could plainly see the characteristics of plumage and bills of the birds. From time to time they would raise their wings displaying the cinnamon and black coloration. When we purposely flushed them, they flew off to rejoin the flock uttering a single note which sounded like *kerrack* as they took flight. Returning an hour later, we found the Willet and Plover had returned to their original feeding ground but that the Godwits were no longer with them.—CHARLES K. AND MABEL M. NICHOLS, 31 Ethelbert Place, Ridgewood, N. J.

**Avocet on Florida East Coast in June.**—On June 1, 1933, I saw a single Avocet (*Avocetta americana*) standing on a mud flat in the company of a few Stilts. The bird was quite tame and I was able to get a very good look at it. A diligent search failed to reveal a second Avocet or any nest other than those of the Stilts.

The mud flat was on the edge of the salt-water bayou at the southern end of Mosquito Lagoon, in Brevard County, Florida.—J. C. HOWELL, Rollins College Museum, Winter Park, Florida.

**Wilson's Phalarope in Essex County, Massachusetts in Spring.**—On May 23, 1934, Mr. S. G. Emilio and I were searching for shore-birds around Newburyport and the mouth of the Merrimac River. The tide was rapidly coming in, and we were standing on the edge of the bay watching the shore-birds gradually working nearer and nearer to the grassy marsh as the tide covered the mud flats. The Greater Yellow-legs was naturally the abundant and dominant species, and the last to be flooded out. As we were watching the nearest flock, a male and female Wilson's Phalarope (*Steganopus tricolor*) in full breeding plumage suddenly swam out of a patch of grass before our astonished eyes, a beautiful sight in the brilliant sunlight. Collecting them proved to be impossible, although the effort was made. They were within easy shot-gun range of the edge of the marsh, but each time a stalk was attempted, the wary Yellow-legs flew away yelping shrilly, and the Phalaropes invariably flew off with them. In all, however, the birds were under observation for nearly an hour.

In recent years Wilson's Phalarope has occurred almost annually in eastern Massachusetts in fall, when it is invariably associated with Lesser Yellow-legs. It now occurs in spring around New York City on rare occasions. There are, however, only two spring records for New England in the past 110 years, one of these from Essex County, Mass., on May 20, 1874. Our observation is part and parcel of the steady increase of the shore-birds in the northeast, ever since the happily inaugurated closed season. Today the variety of species and the abundance of individuals noted annually would have been beyond the bounds of credibility twenty years ago. We have seen several "vanishing" species become regular transients, very rare or accidental "western" species become of increasingly regular occurrence, and the rare species of twenty years ago such as the Dowitcher, Knot and Willet are now recorded annually, sometimes in large numbers in favorable places.—LUDLOW GRISCOM, Museum of Comparative Zoology, Harvard University, Cambridge, Mass.

**Shore-birds and Decoys.**—When in Chicago at the recent A. O. U. meeting, I had the opportunity of discussing with Prof. W. C. Allee, certain aspects of the behavior which I have observed of shore-birds in relation to decoys (called 'stool'



on Long Island). As these general observations may have a bearing on flock organization I would like to place them on record for what they may contribute to the present considerable interest in that subject.

As the birds approach or fly by, one imitates their whistled calls to attract their attention and induce them to join one's flock of artificial birds. There comes a point when they are about to do so, have circled back or set their wings to 'come in.' As they come closer they are still alert and one had best remain motionless and even refrain from further whistling which may not be too perfect a rendering of the proper call. A false move or a false note can send them off again. When they are actually among the decoys, however (well inside the zone of alarm which they hesitate to pass through), and, as it were consider themselves a part of your flock, it is often remarkable how loath they are to leave.<sup>1</sup> Even when fired into they will sometimes circle back and run the gauntlet a second or even a third time.

However independent a unit a shore-bird may be when alone, when in a flock its condition changes and it becomes for the time being an integral dependent part of that flock.—J. T. NICHOLS, *American Museum of Natural History, New York*.

**Shore-birds Hopping on One Leg.**—I have read with interest the notes by Robert P. Allen (Auk, July, 1934) and J. T. Nichols (Auk, October, 1934) on the Sandpipers' habit of hopping on one leg. As doubtless most observers of the shore-birds know, some, and perhaps all, of the Plovers have the habit, too. I have supposed it to be a species of play. *Standing* on one leg might be restful—human beings often rest by shifting the weight from both feet to one—but it is hard to see how *hopping* on one leg could rest a bird. It seems to be a sort of follow-my-leader game, one bird of a flock starting it and another and another joining in till half a dozen or more may be hopping about at once. The foot is usually drawn up out of sight, but on one occasion, in company with Mr. A. C. Bent, I saw three or four Semipalmated Sandpipers (*Ereunetes pusillus*) trailing the unused foot. This performance was started by a bird that may have been an actual cripple, but the others were certainly able-bodied for they varied their gait at will, shifting from one leg to two legs and back again with perfect ease.

My notes on this hopping habit include observations of the Knot (*Calidris canutus rufus*), Semipalmated Plover (*Charadrius semipalmatus*), and Black-bellied Plover (*Squatarola squatarola*). In the cases of the Knot and the Black-bellied Plover the birds were hopping in shallow water. Of the Knots six or eight were playing the game together. The Black-bellied Plover, a flock of thirteen at the edge of a shallow fresh-water pool, besides the hopping game played another, which remains unique in my experience, while bathing, one after another flew up about a foot into the air and came splashing down into the water with much fluttering of wings. About half the flock indulged in this pretty performance.—FRANCIS H. ALLEN, *West Roxbury, Mass.*

**Maximum Numbers of Shore-birds in Iowa During the Spring of 1934.**—Due to the scarcity of suitable feeding areas, resulting from the drought, unusual opportunities were presented for the intensive study of concentrated, migrant shore-birds in Iowa during the spring of 1934. This drought condition was general throughout the state but especially affected the water levels on lakes in western and southern Iowa. Besides the primary effect of reducing or eliminating bodies of water, there was the resulting factor of over-pasturing. Large numbers of cattle were

<sup>1</sup> See Bent, 1927, Bull. U. S. Nat. Mus., 142, p. 328; Nichols and Harper, 1916, Auk, XXXIII, p. 239.

shipped into Iowa from the Dakotas, where even more severe conditions prevailed. This resulted in the disrupting of many suitable mud-flats as feeding areas for shore-birds.

Enumerated below are observations of the maximum numbers of several species of shore-birds as noted at one time by the writer. The Killdeer, Upland Plover, Spotted and Solitary Sandpipers were noted in moderate numbers, and usually but a few at a time.

*Charadrius semipalmatus*. SEMIPALMATED PLOVER.—25 were seen at Lost Island Lake, Clay County, May 24.

*Pluvialis dominica dominica*. AMERICAN GOLDEN PLOVER.—A flock of 16 was seen on the mud flats of South Twin Lake, Calhoun County, May 7. They were accompanied by one Black-bellied Plover.

*Squatarola squatarola*. BLACK-BELLIED PLOVER.—A flock of six was seen on Goose Lake, one mile east of Jewell in Hamilton County, May 19.

*Arenaria interpres morinella*. RUDDY TURNSTONE.—Small scattered flocks which totaled 14 were seen along the sandy shores of Spirit Lake, Dickinson County, on May 23.

*Capella delicata*. WILSON'S SNIPE.—A group of 27 birds was noted around a very small pond near Lake Mills, Winnebago County, April 20.

*Totanus melanoleucus*. GREATER YELLOW-LEGS.—A total of 15 birds was seen at the Cones Marsh in Louisa County, April 27.

*Totanus flavipes*. LESSER YELLOW-LEGS.—About 300 were seen at the Cones Marsh in Looisa County, April 27.

*Pisobia melanotos*. PECTORAL SANDPIPER.—At least 125 were seen at Little Wall Lake, Hamilton County, May 19.

*Pisobia fuscicollis*. WHITE-RUMPED SANDPIPER.—Flocks totaling about 300 were noted at Spirit Lake, Dickinson County, May 23.

*Pisobia bairdi*. BAIRD'S SANDPIPER.—Three were seen at a small pond south of Le Mars, Plymouth County, May 24. This is in no way a true index as to the comparative abundance of this species as a spring migrant through Iowa.

*Pisobia minutilla*. LEAST SANDPIPER.—About 100 were seen at Little Wall Lake, Hamilton County, May 19.

*Pelidna alpina sakhalina*. RED-BACKED SANDPIPER.—At least 600 were seen along the sandy shores of Spirit Lake, Dickinson County, May 23.

*Micropalama himantopus*. STILT SANDPIPER.—A flock of 47 was found feeding in the shallow, muddy water of Round Lake, Clay County, May 24.

*Ereunetes pusillus*. SEMIPALMATED SANDPIPER.—1,800 were estimated to be present along the shores of Spirit Lake, Dickinson County, May 22.

*Limosa fedoa*. MARBLED GODWIT.—A single bird was seen at Brenton's Slough, twelve miles northwest of Des Moines, Polk County, May 13, and another was noted at Lost Island Lake, Clay County, May 24.

*Limosa haemastica*. HUDSONIAN GODWIT.—A flock of 21 was seen along the west side of Spirit Lake, Dickinson County, May 23.

*Crocethia alba*. SANDERLING.—Five were seen at Spirit Lake, Dickinson County, May 22.

*Steganopus tricolor*. WILSON'S PHALAROPE.—A group of ten was seen near a pool north of Spencer, Clay County, May 6.

*Lobipes lobatus*. NORTHERN PHALAROPE.—A flock of 20 was seen at Spirit Lake, Dickinson County, May 22.

The Piping Plover, Woodcock, Western Willet, Dowitcher, and Avocet, while not

observed by the writer, were noted by other observers in Iowa during the 1934 spring migration.—PHILIP A. DUMONT, *Des Moines, Iowa*.

**The Lesser Black-backed Gull in New Jersey.**—On September 9, 1934, Mr. C. A. Urner and the writer saw a Gull at Beach Haven, Ocean Co., N. J., which we feel certain was a Lesser Black-backed Gull (*Larus fuscus fuscus*). We found a flock of about 25 Gulls standing on the ocean beach at the inlet just south of Beach Haven. The birds were all Herring Gulls with the exception of two.

One of these was an adult Great Black-backed Gull. The other bird on first glance appeared to be the same but as it stood in the midst of the Herring Gulls we noticed that it did not exceed them in size and was considerably smaller than the Great Black-backed Gull which was standing about twenty feet away. Fortunately we recalled that there was a difference in the color of the feet and legs in the Lesser Black-backed Gull and we concentrated our attention on these parts. The legs were seen to be yellow instead of dull pinkish as were the legs of the Herring Gulls and the Great Black-backed Gull. When we first saw the bird it was standing between us and the rising sun. In order to make sure that the light conditions were not responsible for the apparent differences in leg color we circled to get the sun at our backs. We found that the difference in color was striking under any condition of light.

Careful comparison of the size of the bird with the Herring Gulls showed that it might be slightly larger than some of them but it was slightly smaller than others. The color of the back appeared to be the same as that of the Great Black-backed Gull. This would indicate that the bird belonged to the northern race known as *Larus fuscus fuscus* and not to the western race, more frequently found in the British Isles, which has a lighter mantle. We had the bird under observation, using 7 and 8 power binoculars, for about half an hour under excellent light conditions at a distance of about 75 yards.

The circumstances, which made possible direct size and color comparisons with the Herring and Great Black-backed Gulls, make this sight record, for a bird which has apparently never before been reported from the United States, worthy of consideration.—JAMES L. EDWARDS, *Montclair, N. J.*

**Probable Occurrence of Little Gull in Massachusetts.**—On June 7, 1934, the writers made a short afternoon trip to Nahant, Essex County, in search of late shore-birds. While driving down the causeway, we stopped to look over Lynn Harbor with our glasses, and saw a flock of ten Bonaparte's Gulls, alternately resting on the water and restlessly flying up for a short distance. With them was a slightly smaller bird, which in flight was instantly picked out by the dark under surface of the wings. A brief moment's observation was sufficient to check the fact that it was light gray above and white below, obviously a Gull, not a Tern, and we knew we were looking at a Little Gull (*Larus minutus*) of Europe. At first the flock was some distance off, and when the birds settled they almost disappeared. They gradually came nearer shore, however, and after the third restless move, the Little Gull was picked out on the water by its smaller size. On the wing the smaller size was even more obvious, and the dark under surface of the wing was easily visible and, of course, absolutely diagnostic. The bird was still in winter plumage, with dusky about eyes, ears and back of head, and as there was a broad tail band and some black and dusky near the tip of the wing, it was undoubtedly passing from the first winter to the second year non-nuptial plumage.

Unfortunately the bird could not be collected, as Lynn Harbor is sanctuary. In

spite of unremitting efforts on the part of Mr. S. G. Emilio and others, the bird could not be found again later that evening or the following day. There are no Massachusetts records, but there are two from Maine and several recent records from the vicinity of New York City, including the past spring. It is certainly surprising that all these records are between May and late August and in nearly every case the bird was associated with Bonaparte's Gulls. While we do not favor formal additions of birds to state lists without at least one specimen, this observation should at least call the attention of students to the desirability of carefully studying flocks of Bonaparte's Gulls at the proper season of the year, and how to distinguish this accidental visitor, if present.—JOHN H. CONKEY AND LUDLOW GRISCOM.

**A Lengthened Egg-laying Interval in the Common Tern.**—A series of observations of nests of the Common Tern (*Sterna hirundo hirundo*) at a colony on the north shore of the Gulf of Saint Lawrence showed that the eggs in each nest were not laid on successive days, as is commonly true in birds, and has been believed to be true in this species, but that the eggs were laid at two or three day intervals. The observations were made at a colony of 1000 adult birds on Cormorant Island near Matamek Factory, in Moisie Bay, Saguenay County, Quebec, between July 13 and 23, 1934.

The nests were marked and records of the number of eggs were made each day. In no case under observation were any eggs laid on successive days but in several an interval of two or three days was noted. The records of the nests which show this are presented here in tabular form.

No. of nest	120	49	56	6	5	58	85	3	98	11	82
Number of	1	1	1	1	1	1	1	2	2	2	2
eggs on	1	1	1	1	2	2	2	2	2	2	2
successive	1	2	2		2	2	2		3		2
days	2	2	2	2	3	3	2	3	3	3	3
(Read down)	2	2	2	2	3	3	3		3		3
	2	2	2	2	3	3	3	3			3

In July, at the time of our observations, the Terns were laying a second clutch of eggs after the first had been taken by natives for food. It is therefore entirely possible that the first eggs are laid on successive days and that only the later eggs are not developed rapidly enough to be laid in so short a time. On the other hand this increase in length of time required for egg-laying may be characteristic of the Terns at the northern edge of the range of the species.—SEARS CROWELL, *Biological Laboratories of Harvard University, Cambridge, Mass.*

**Forster's Tern (*Sterna forsteri*) Breeding on the Lake Puckaway Marsh, Wis.**—On May 23, 1934, Mr. Clarence Allen, of Milwaukee, reported a breeding colony of Forster's Terns out in the middle of the Lake Puckaway marsh and on the 29th, accompanied by Mr. I. J. Perkins of the Milwaukee Public Museum staff, he again visited the colony. They found it to consist of about 25 nests and are quite sure that there were more in the area not covered.

Some of the nests were in the process of construction while others contained from one to three eggs. Practically all were built within an area where the vegetation was quite thick, although several were placed out upon the exposed mud bogs. Some were composed of dead and some of green cat-tail blades, built up to an elevation of about three inches above the floating mud bog foundation. By comparison to the numerous nests of Black Terns they appeared quite bulky.



Photographic possibilities prompted the writer to return to the spot with Mr. Perkins on June 13. As we approached the nesting colony, the adult birds arose well ahead of us and were extremely shy in contrast to the actions of the ever bold Black Terns. Judging from the number of empty nests, we figured that either most of the young had hatched or that possibly some of the nesting birds had been discouraged by muskrats which had made dung heaps of many of the nesting elevations. Upon several of the nest bogs we found young several days old and a few of the nests still contained eggs. We built a platform blind at a nest which contained eggs and was favorably situated for photography. The next morning we quietly established ourselves and paraphernalia in the blind and soon the activities of the nesting birds became normal and we had ample opportunity to study them at close range.

It is almost impossible to distinguish the Common from the Forster's Tern while in flight. With two exceptions the calls of all birds were alike. They were of exactly the same pitch, creating a monotonous low-pitched, down-scale "buzz," the range being a half-note from high to low. The calls of the two mentioned likewise were exactly alike but of a decided higher pitch with a rattling quality. I judge that these birds were Common Terns but with the array of birds on the wing it was impossible to determine whether or not they were nesting.

The bird which we were photographing frequently took her position directly above us, at which times the strong beat of her wings could be heard as she hovered stationary and looked directly down upon our set-up. The Forster's Terns proved to be very quarrelsome and frequently they savagely attacked the too venturesome Black Terns. Often a Forster's darted upon a Coot, which evaded the attack by diving completely under water.

Several times just before dropping to the nest, the Tern uttered a sharp, penetrating "click" which much resembled the similar call of the Red-winged Blackbird. The winging down to the nest could be very distinctly heard from the blind, although the bird dropped to the edge very lightly and walked forward to the eggs.

From a distance of about four feet we had excellent opportunity to observe the birds and particularly the entirely white outer web of the outer tail feathers and the dark inner web as well as the pure white breast and abdominal feathers. We secured a fine series of both still and motion pictures. It is quite possible that the Forster's Terns have been breeding on Lake Puckaway regularly but until this year they had not been reported.—O. J. GROMME, *Milwaukee Public Museum, Milwaukee, Wis.*

**Occurrence of the Least Tern (*Sterna a. antillarum*) in Wisconsin.**—On August 19, 1934, an immature female Least Tern was collected on the Lake Michigan shore at the mouth of Bar Creek, Sheboygan Co., Wis. I believe the most recent published record of the occurrence of this bird in Wisconsin is that of three adults collected by L. Kumlein in June, 1893, on Lake Koshkonong. (*The Birds of Wisconsin*, Kumlein and Hollister.)

This latest specimen is in the Milwaukee Public Museum's collection of birds.—CLARENCE S. JUNG, 4612 N. Oakland Ave., Milwaukee, Wis.

**Least Tern taken near Toledo, Ohio.**—Records for the Least Tern (*Sterna antillarum antillarum*) for the state of Ohio are so few, especially for the last 30 years, that the following seems worthy of note. On September 16, 1934, I collected two immature females in similar plumage in Jerusalem Twp., Lucas Co., Ohio, along the shore of Lake Erie. One specimen prepared by B. R. Campbell was presented to the Museum of Zoology, University of Michigan. The other, prepared by the writer, was given to the Ohio State Museum at Columbus.—LOUIS W. CAMPBELL, Toledo, Ohio.



**The Black Tern in New Brunswick.**—A juvenile Black Tern (*Chlidonias nigra surinamensis*) was shot on September 5, 1933, on a small marshy lake in Memramcook, New Brunswick. The specimen is now in the National Museum of Canada and my identification has been confirmed by Mr. P. A. Taverner. The bird was accompanied by three others apparently of the same species. The four birds from time to time snapped up flying insects.—REID McMANUS, JR., *Memramcook, New Brunswick, Canada.*

**Roadrunner Nesting in Kansas.**—On April 19, 1934, I visited the farm of Mr. E. G. Haindel four and a half miles east of Arkansas City, Kansas, where I was told that a "Pheasant" was nesting in a hedge-row a quarter of a mile from the house. I visited the nest at once and found it to be that of a Roadrunner (*Geococcyx californianus*). It was situated three feet up in a clump of hedge trees and contained the shells of two broken eggs. Mr. Haindel told me that several pairs were seen on his place this year and about the same number last year.

Next day I flushed a female bird from another nest seven feet up in a short hedge-row, which contained five very heavily incubated eggs. The bird alighted on the ground and quickly disappeared among the rocks. On May 3 this nest contained two eggs and one chick several days old.

On May 29 I found a third nest on the same farm, situated on a horizontal limb of an osage tree about ten feet from the ground, containing six eggs moderately incubated. The nest was a rather bulky affair composed of pods and stems of last year's Jimson weeds, sticks of various kinds, sheep wool, etc., lined with rootlets, strippings of plants, etc. While the nest was being collected the parent bird remained in the tree resenting the intrusion with noisy snapping of the mandibles.

Another nest, previously overlooked, was found on July 8, after the young had left.

Harry Lewis informed me that he had seen the birds on his farm and on that of a neighbor, both situated northeast of the Haindel farm.

This region with its rock-ribbed hills and ravines well covered with trees and hedge-rows is ideal country for the Roadrunner, and from conversation with the farmers I judge that the birds have been summer residents of these hills for the past five or six years.

I found these birds in April, 1920, in the Wichita Mountains, southeastern Oklahoma and in June, 1929, found a pair nesting in a hole in the rocks above Flag Springs, Cimarron, Okla.—WALTER COLVIN, *Arkansas City, Kansas.*

**Nesting Habits of Ruby-Throated Hummingbird.**—It was the writer's good fortune to have had three Hummingbird (*Archilochus colubris*) nests under observation in Rowan County, Kentucky, during the summer of 1934. The first of these was discovered on May 17. At that time the female was incubating and she alone appeared at the nest during the following five weeks.

On June 15 another female was discovered beginning the construction of a nest less than 75 yards from the first one. Most of the material used in its construction consisted of the soft downy substance from the under surface of sycamore leaves, supplemented with bits of lichen from the same tree. After working for two days, the bird apparently deserted the task for a week, but returned to complete the nest and laid her first egg on July 25 and her second the following day. Ten days later the eggs mysteriously disappeared.

These nests excited the writer's curiosity, for it is not often that one finds two pairs of this species nesting in such close proximity. One wonders if these two females may not have been the harem of a single male.

On June 29, still a third Hummingbird was discovered beginning the construction of a nest. The location was approximately a mile from the other station. The material used consisted primarily of down from sycamore leaves, and the entire nest, with the exception of bits of lichens that were added later, was built in one day. It is interesting to note that both birds, male and female, worked on this nest that first day. The male evidently was doing his share of the work. This seems to be an unusual circumstance, as ordinarily the male is supposed to scorn such menial duties. On July 2, the first and only egg was deposited in the nest and incubation was begun. Three days later the nest was broken up and the egg disappeared.

It would seem that the time consumed in nest building diminishes as the season progresses. Perhaps haste is necessary in order that the potential young may be completely developed by the time of fall migration. This need for haste may also have been the stimulant which caused the male in the last case to assist in nidification.—W. A. WELTER, *State Teachers College, Morehead, Kentucky.*

**Kingbird (*Tyrannus tyrannus*) Attacks Airplane.**—Several times daily during a part of the summer of 1919 a flier at Iowa City, Iowa, took passengers one at a time for short flights in his small biplane. His regular course circled over a hay field on the crest of a hill at Sunnycrest, the farm of my grandfather, John Williams. Since there were no obstructions the airman flew very low (60–100 ft.) over this hill. A Kingbird, which sat regularly on a wire fence on the lookout for insects and enemies, would fly up at the approach of the slow plane and make one or two savage dashes at it before it was out of his reach, uttering all the while his harsh, chattering battle-cry. This was observed a number of times by my father and grandfather. It is common knowledge that a Kingbird will attack most boldly Crows, large Hawks, etc., but the courage and audacity of this bird in attacking a noisy and relatively huge airplane was certainly extraordinary. A case of this sort could scarcely have occurred except where a slow, low-flying plane was involved.—JOHN R. WILLIAMS, *801 W. Nevada St., Urbana, Ill.*

**Egg of Gray Kingbird Contains Two Embryos.**—Examining a nest of Gray Kingbirds (*Tyrannus dominicensis*) I was surprised to note that one of the three eggs was nearly twice as large as the others. Accidentally breaking the large egg, I discovered that it contained two embryos, both alive, and equally developed, near hatching point.

The nest was found in a low mangrove, near New Smyrna, Volusia County, Florida, on May 24, 1931. Mr. O. E. Baynard was with me.—J. C. HOWELL, *Rollins College Museum, Winter Park, Florida.*

**Feeding Habits of the Raven in Winter.**—In the afternoon of March 7, 1933, a Northern Raven (*Corvus corax principalis*) was found feeding on refuse near a hen house in Memramcook, New Brunswick. When disturbed it flew to an adjacent field and about 3 P. M. returned, entered the hen house, and killed a sickly hen. A farm hand surprised it as it began to devour the bird, but it escaped. An hour later it again entered the house after standing outside for about ten minutes, and again began to feed. This time it was captured and killed. Its stomach contained only a piece of skin from the hen and a few feathers. The bird was a male and weighed 2 lbs. 14 oz. Roberts (*Birds of Minnesota*) quotes 2 lbs. 5 oz. to 2 lbs. 11 oz. as the weight of a Raven. This bird while not fat was not in an emaciated condition.

It may have been unnaturally bold or may have been forced by hunger to approach the vicinity of human dwellings; a heavy snow fall during the preceding week may have made food scarce.—REID McMANUS, *Memramcook, New Brunswick, Canada.*

**The Southern Crow in Arkansas.**—On May 18, 1929, I shot a smallish Crow on the bank of the Arkansas River near Fort Smith, Ark. As the Fish Crow (*Corvus ossifragus*) had been previously reported to Dr. H. E. Wheeler as occurring at this locality I took it for granted that my bird was referable to that species. Later Dr. Louis B. Bishop obtained the specimen in question and identified it as *C. brachyrhynchos paulus* the Southern Crow.

The question now arises whether the Fish Crow really occurs in Arkansas, since apparently no specimens have been collected, and also whether any of the Arkansas birds are the large Crow (*C. b. brachyrhynchos*) or are all referable to the smaller race. I feel quite sure that the Crow of the Ozark Mountains in the northern part of the state is the large form—typical or nearly typical, but more collecting is necessary to determine definitely the true nature of the Arkansas Crows.—J. D. BLACK, *University of Kansas, Lawrence, Kas.*

**The Magpie (*Pica pica hudsonia*) in Wisconsin.**—On November 5 a Magpie was reported in Milwaukee, and I collected it for the Milwaukee Public Museum. I immediately got in touch with the Zoo but no Magpie had escaped, nor did the bird show any signs of having been kept in captivity, the tail being in no way frayed as it would be in a cage bird. Due to the prevailing drought there may have been an eastern movement of this species. Hollister states that in 1848 a specimen had been reported by Hoy, and again later in 1860 and 1878. Since then I do not recall any records of their appearance.—WALTER J. MUELLER, *Milwaukee Public Museum, Milwaukee, Wis.*

**Mockingbird in Summer at Wood's Hole, Mass.**—On June 8, 1934, I heard a bird singing about dusk near one of the bathing beaches at Woods Hole, Mass. The song was so clear and varied, I thought it must be a Mockingbird. On the following two days, one of which was rainy, the bird was heard again at the beach but not seen. Then, convinced that it must be a Mockingbird far from its usual habitat, it was sought and proved to be an adult Mockingbird (*Mimus polyglottos polyglottos*). For about two months the bird sang daily from shrubbery, housetops, wires, and chimneys. Not once within many observations was it seen more than a hundred yards from where it was first heard. It sang early and late, even by moonlight, and in fair or foggy weather. Its song displayed all the well known Mockingbird traits, and once at least it gave an excellent imitation of a Cardinal although Cardinals are not found in this locality. It was also fond of the Mockingbird habit of springing into the air in full song for a short flight, then returning to the same perch.

After about two months it disappeared, and, although a few inquiries were made, its fate was not learned. The writer was told however that it had occupied the same location for a while in the summer of 1933.—JAMES B. LACKEY, *Seton Hall College, South Orange, N. J.*

**Mockingbird in Wisconsin.**—Two adult Mockingbirds (*Mimus polyglottos polyglottos*) were seen by the writer on July 27, 1934, in a clump of scrub oaks on the west side of the McCoy Airport, about eight miles northeast of Sparta, Monroe County, in west central Wisconsin. Since the writer is thoroughly familiar with this species, there is no chance for error in identification. This record the writer presents as an addition to the none too numerous records of the northward wanderings of this erstwhile southern species.—CHARLES THEODORE BLACK, 407 E. Daniel St., *Champaign, Ill.*

**Southern Robin (*Turdus migratorius achrusterus*) in Houston, Texas.**—

About ten or twelve years ago the first pair of Robins bred in Houston. Since then the number of breeding birds has steadily increased, until now there must be as many as twenty-five pairs. The center of their distribution is on the grounds of the Houston Country Club but for the last two years they have been breeding in the vicinity of our home at No. 16 Courtlandt Place. There is a hiatus between the coming of these breeding birds and the leaving of the winter residents, the latter leaving two or three weeks before than the arrival of the summer residents. It would be very interesting if observers in other parts of Texas and southern Louisiana, where I understand Robins also breed, would investigate the earliest appearance of these summer residents and their present status. The identification of my bird was by Dr. Harry C. Oberholser.—J. J. CARROLL, *Box 356, Houston, Texas.*

**The Migrant Shrike in the North Carolina Mountains.**—For the past 23 summers the writer has paid considerable attention to the birds of the mountains of western North Carolina, and not until 1934 did he ever note the occurrence of any Shrike in that territory. On August 31, 1934, however, he saw two of these birds at the roadside between the town of Old Fort, and the resort of Ridgecrest, at an elevation of about 2400 ft., in the county of Buncombe. The birds were seen from a car, at a range of only a few feet, and were about a mile apart. They are referred to *Lanius l. migrans* as this is the form found in the western part of the state; *ludovicianus* being confined to the coast region. *Migrans* is mentioned by Cairns as a migrant in Buncombe County but it must be a very rare bird there, unless it passes through during October or later. The writer's residence in the mountains usually terminates on or about October 1.—ALEXANDER SPRUNT, JR., *R. F. D. No. 1, Charleston, S. C.*

**Food Carrying by the Crested Starling.**—While feeding meal worms (larvae of the Tenebrio beetle) to a specimen of the Crested Starling (*Galeopsar salvadorii*) in the National Zoological Park, I noticed that instead of eating them at once he took them one at a time from my hand and held them in his beak, working each one back towards the base of the beak and repeating the process with the next one offered. I purposely fed the bird all that he could hold between his mandibles until there were 21 worms protruding from the sides of the beak.

He was apparently following the practice, so common during the time that the nestlings are fed, when the parent secures a beak full of food before visiting the nest. This bird however having no youngsters, I was interested to see what he would do next. He simply walked to the rear of the cage, which he shared with a number of Doves, dropped all of the worms and devoured them in haste seeming to lose any further impulse to feed young.—MALCOLM DAVIS, *Nat. Zool. Park, Washington, D. C.*

**Some Observations on the Behavior of Starlings and Grackles in Relation to Light.**—From the middle of September to October 17, 1934, large numbers of Bronzed Grackles (*Quiscalus quiscula aeneus*) and Starlings (*Sturnus v. vulgaris*) roosted in the shade trees of a residential district of Columbus, Ohio, a half mile from our home; an acquaintance informs us that this is the first time that this has happened in the fifteen years he has lived in this district.

On nine mornings and five evenings, between October 6 and 15, I watched the flights of these birds from our lawn, noting the time and also the light as measured by a Weston photometer lent me by Dr. W. M. Barrows of the Zoology Department of Ohio State University. This instrument received full zenithal light. In the morning I faced the roost, so could easily see the first flock that rose. Many flocks consisted of one species only, while others were mixed. The roar from the roost was



plainly audible to me, starting two or three minutes before Civil Twilight (28 minutes before sunrise) at light of .2 foot-candles.

The light at official sunrise on nine mornings that I called clear ranged from 27.5 to 44 foot-candles, the median being 36.5; on two cloudy mornings it was 19.5 and 22. The light at sunset on two clear evenings was 33 and 35.5 foot-candles; on two slightly cloudy evenings 28 and 29, and on one really cloudy evening 22.

The first flight of Starlings on seven clear mornings left the roost 10 to 14 minutes before sunrise, the median being 11 minutes; light values ranged from 7 to 9.9 foot-candles, median 7.5. On the one cloudy morning they left 5 minutes before sunrise at 9.9 foot-candles. The date on which they left 14 minutes before sunrise was the exceptionally clear morning of October 12, when the light at sunrise amounted to 44 foot-candles. From the 8th to the 13th (except for the cloudy morning of the 10th) the first flight took place at from 7.0 to 7.6 foot-candles, but on October 14 and 15 the light values were 9.9 and 8.2 foot-candles; these mornings were markedly cooler than the others.

The largest flocks left on clear mornings from 10 to 4 minutes before sunrise at light values of 12 to 25 foot-candles, and on the cloudy morning one minute after sunrise at 22 foot-candles, the majority of the birds leaving between 20 and 25 foot-candles. The last flocks left from one to eleven minutes after sunrise at light values ranging from 44 to 85 foot-candles.

As to the Grackles on seven clear mornings their first flights left from 7 to 9 minutes before sunrise at light values of 13 to 16 foot-candles (median 14); on one cloudy morning they left 3 minutes before sunrise at a light value of 13.5 foot-candles. On the very clear morning of October 12 the first birds left exceptionally early—13 minutes before sunrise at a light value of only 8.5 foot-candles.

Curiously enough one or two Grackles that roosted alone not far from our house made their first flights very much earlier: on clear mornings from 15 to 21 minutes before sunrise at light values of 1.2 to 4.8 foot-candles, and on the cloudy morning 11 minutes before sunrise at 3.8 foot-candles. Since there was a deafening din from the roost for a full half hour before sunrise, it is clear that the birds are awake for some time before they fly. It is interesting how the solitary individuals started out so much earlier than the sociable members of the species.

The largest flocks of Grackles left at light values of 20.5 to 29 foot-candles, the median being 22; on clear mornings they left from two to seven minutes before sunrise, on the cloudy day one minute after sunrise. The last flocks were recorded at about the same times as the Starlings.

In the evenings the first flocks of both species were seen about one-half hour before sunset. The largest flocks passed over from 14 to 9 minutes before sunset on clear evenings and from 16 to 5 minutes before on more or less cloudy evenings. Light values ranged from 114 to 40 foot-candles, but the height usually occurred between 65 and 52 foot-candles. The flight ended just about sunset—from one minute before to three after.

This study covered a period of ten days only; observations on Starlings should be made throughout the year, as V. C. Wynne-Edwards (*British Birds*, 1931, 24, pp. 346-353) found a decided seasonal difference in the time of leaving the roost in southern England, the birds flying very early on December mornings and late in February and March.

My observations have shown that the first Starlings left the roost at lower light values than did the Grackles; that the flocks of Grackles were much later than single birds of this species; and that leaving the roost and returning to it were very closely correlated in both species with light.—MARGARET M. NICE, *Columbus, Ohio*.



**Flickers Attacked by Starlings.**—Situated a few yards from the house stands a large, tall dead elm stub, in which Flickers (*Colaptes auratus luteus*) have attempted, unsuccessfully, to nest. For three successive seasons, a new cavity was dug but Starlings (*Sturnus v. vulgaris*) drove the Flickers out and nested in these cavities.

The first year the Flickers were driven away before eggs were laid. The next spring, a pair of Starlings desirous of the new nest-hole for their second brood, killed the young Flickers and they, or another pair, later threw out the dead birds, and nested. The third year, hearing a great to-do of Starling squawks and whistles, I was in time to see a Starling, pursue the female Flicker and strike her at the base of the skull when she alighted at the nest-hole. Examination proved that the victim was killed instantly, the Starling's bill having pierced skull and brain. Since then several nesting Flickers, presumably killed in this same manner, have been brought to me. In 1933 I saw a female that was paralyzed from an attack; she tried several times to climb up the tree and finally fell back and died.

On the morning of April 22, 1934, a Flicker was giving his ringing call and drumming on the old elm stub at 6:00 A. M. Later, pursued by Starlings, he ducked first one way and another, finally going behind a large loose sheet of hanging bark, where he was not molested. The following morning he was at the stub at 5:00 A. M. and his successive visits varied little from this hour. This morning when Starlings attacked him, being close to a nest-hole, he entered the cavity and remained inside for about ten minutes. During this interval he was heard, to do some tattooing and thereafter made it a practice to dodge immediately into this hole when he came to the stub, and from inside give his seasonal importunings for some female of his ilk, repeating the performance several times a day.

Giving off as it did an indistinct and uninterpreted pounding drone, this unique tattooing apparently disquieted the Starlings since they could not seem to detect its cause, and it sufficed to hold them at bay. They continued to be uncertain and suspicious, coming to the stub and inspecting it on the outside, alighting in nearby trees and vociferating, only to fly away hastily when the droning drumming commenced anew. At this time two pairs of Starlings had eggs in the stub and the third pair was building in the cavity preëmpted by the male Flicker, but all three pairs deserted. The direct result was that no Starlings nested there in 1934. And as they never missed a chance to drive away any Flicker that alighted on the stub, no Flickers nested, either.—LEWIS O. SHELLEY, *East Westmoreland, N. H.*

**Prothonotary Warbler at Auburndale, Mass.—A Correction.**—I have but just discovered an error that appeared in the 'General Notes,' page 223 of 'The Auk' for April, 1928, and which seems unaccountably to have gotten by me at the time.

The title "The Prothonotary Warbler at Newton Centre, Mass." should have read, "The Prothonotary Warbler at Audurnbale, Mass.," the place where the specimen was collected as the context shows.—FRED. H. KENNARD, *Newton Centre, Mass.*

**Nashville Warbler (*Vermivora ruficapilla*) in Alabama.**—In Howell's 'Birds of Alabama' there is a single doubtful record of the Nashville Warbler for this state. It was recorded by A. A. Saunders at Hollins, April 18, 1908. Howell says (p. 290): "Mr. Saunders wrote me (April, 1916) that this specimen, being badly mutilated, was not preserved and that he has since felt some doubt as to the correctness of his identification."

I saw a Nashville Warbler in the western suburbs of Birmingham, April 30, 1934. I recognized it by its gray crown, white eye ring, yellow breast, and very active habits.—HENRY STEVENSON, 207 S. 13th St. S. W., *Birmingham, Ala.*

**Further Notes on Brewer's Blackbird (*Euphagus cyanocephalus*) Breeding in Northeastern Illinois.**—Ford in 'The Auk,' Vol. XLVII, pp. 565-566, recorded a small breeding colony in Northfield Township, Cook County, also mentioning a pair which the writer collected from that colony.

Inasmuch as the specimens mentioned would not leave a small weed patch, in which I found the remains of a fresh nest, while in skinning the female I found a fully formed egg in the oviduct, I assume that they were a mated pair.

The following year (1931) the colony, comprising about eight pairs, established themselves on the west side of Skokie Marsh, located about one mile west of the field used in 1930.

In 1932 the colony had increased to about fourteen pairs and on May 30, I located two nests, one with four and one with five young which were only a few days old. A week later Mr. James Mooney, of Highland Park, Illinois, banded these young.

In 1933 there were about twenty pairs.

When the birds arrived this year (1934) they found their site had been torn up by one of our C. W. A. projects and were again forced to move, but for a short distance only. There were about twelve pairs this year.

On June 26, 1932, near Beach Station on the Waukegan flats, I collected, from a mixed flock of about twelve, an adult male. This locality is about three miles south of Zion, Lake County, where other breeding records were quoted by Ford in the above mentioned article. This specimen is in the collection of the Chicago Academy of Sciences (No. 2288).

Although few in numbers, and of local distribution, it now appears that this species may be considered as a regular summer resident in northeastern Illinois.—JAMES S. WHITE, 6036 Kenmore Avenue, Chicago, Ill.

**The Effect of Emotion on the Iris of The Boat-tailed Grackle.**—In a recent issue of 'The Auk,' Mr. E. A. McIlhenny stated that it was his belief that emotion had a great deal to do with the iris color of the Boat-tailed Grackle (*Cassidix mexicanus major*). He gave as his reasons, instances of certain birds caught in banding traps, and stated that under the stress of fear caused by handling, the iris changed from yellow to brown during the time the birds were in the hand.

In the next number of 'The Auk,' Dr. Harold Wood stated that he believed the iris color to be the result of age, and that the yellow-eyed birds were simply adult, the brown color being characteristic of immaturity. This the writer believes thoroughly, and it seems to be entirely logical and well proven.

Two instances connected with emotion follow. During the last few weeks, a friend of the writer's had occasion to collect a specimen of this species and wing-tipped a bird. It was chased for nearly three hundred yards, and was finally cornered in a clump of grass, and grasped firmly. Naturally, it was in a high state of excitement, and as thoroughly alarmed as it could well be. The observer looked immediately at the iris, and found that it was the usual clear yellow. The bird was slightly sub-adult, and the narrow, cloudy ring of brown was visible about the outer rim of the eye. During last June, Mr. E. Milby Burton, Director of the Charleston Museum, wounded a Grackle under almost identical circumstances. This bird fell into salt water and marsh, and was chased for several minutes before being caught. It was at the pitch of terror when seized. Mr. Burton made an immediate examination of the iris and found it to be bright yellow. The bird was fully adult.—ALEXANDER SPRUNT, JR., R. F. D. 1, Charleston, S. C.

**The Rediscovery of *Chlorospingus flavovirens* (Lawrence).**—For many

decades the type of this species in the American Museum in New York labelled by Lawrence as "from Ecuador, C. R. G." has been unique. Last summer I was pleased to find a second specimen in the British Museum, which by some inadvertence had been put unidentified in a box of *C. olivaceus* from Mexico. The label reads:—Sex ?; Santo Domingo, West Ecuador; alt. 1600 ft.; July 1, 1914; coll. G. Hammond. The specimen was acquired from Rosenberg and bears the register number 1921.12.29.80. While at first sight this gives us apparently a definite locality, Santo Domingo is in the humid tropical zone, and so far as I know every other species of this genus is either subtropical or temperate. The probabilities are, therefore, that the bird came from the subtropical zone above Santo Domingo.—LUDLOW GRISCOM, *Museum of Comparative Zoölogy, Harvard University, Cambridge, Mass.*

**Hornemann's Redpoll (*Acanthis h. hornemanni*) in Luce Co., Mich.**—During March and April, 1930, I trapped upwards of one hundred Redpolls, at my banding station near McMillan, Mich., mainly the dark Common Redpoll but some light colored ones. Mr. M. J. Magee suggested that I collect one of the whiter ones to see if it might not be *A. h. hornemanni*. It was not until March 11, 1934, that I was able to secure one that I thought might be this species. It was submitted to Dr. Joselyn Van Tyne of the University Museum at Ann Arbor, who pronounced it as "apparently a Greenland Redpoll."

It was an adult male and its stomach contained timothy seed which it had obtained at my station.

Barrows (Birds of Michigan) gives but one record of this species for the state.—OSCAR MCKINLEY BRYENS, *McMillan, Mich.*

**The Breeding Range of the Painted Bunting in South Carolina.**—In view of the fact that the Painted Bunting (*Passerina ciris*) is generally assumed to be confined, at least during the summer months, to the proximity of the coast in South Carolina, it is of interest to record at this time the occurrence of this rather gaudy species as a breeding bird well inland in the state. On July 27, 1934, I had occasion to drive from Yemassee, South Carolina, to Augusta, Georgia, following State Highway 28, and throughout the morning saw Painted Buntings at frequent intervals about thickets and underbrush bordering the open fields. It is well known that this species is a common summer resident at Augusta, so it undoubtedly has followed the Savannah River from the coast to the extreme upper edge of the Coastal Plain. Its appearance, however, at Varnville and at Allendale, towns approximately twenty and ten miles, respectively, from the river, was rather unexpected. On numerous occasions I have driven from Savannah, Georgia, to Augusta, following State Highway 21, which is just about as far from the river in Georgia as is State Highway 28 on the opposite side of the river, and I have never recorded the Painted Bunting south of Augusta or north of Savannah.—THOMAS D. BURLEIGH, *U. S. Biological Survey, Asheville, North Carolina.*

**Arctic Towhee at Madison, Minn.**—On May 11, 1934, I trapped in my yard a male Arctic Towhee (*Pipilo erythrophthalmus arcticus*) and on May 13, a female. These two birds were sent to Dr. Thomas S. Roberts who identified them as above, and states that they constitute the first record of this race from Minnesota. They came after our famous 48 hour dust storm of May 9–10 which probably accounts for their wandering.—MRS. C. E. PETERSON, *Madison, Minn.*

**Lincoln's Sparrow (*Melospiza l. lincolni*) Nesting near Bangor, Maine.**—On June 27, 1931, when paying a visit to the well-known Bangor bog, about five

miles north of Bangor, Maine, a locality very rich in its variety of birds, I was surprised to find a Lincoln's Sparrow in full song, and on June 3 of the present year (1934), discovered this species at precisely the same place. The Sparrow frequented the open sphagnum stretches in the center of the bog along with numerous Yellow Palm Warblers. All attempts to find the nest failed, although there can be little doubt that the bird had a nest nearby. This is apparently the first record of Lincoln's Sparrow breeding in Penobscot County, although it has been found to nest locally in Aroostook and Washington Counties, and I found at least two pairs in an open bog on the island of Grand Manan, New Brunswick, during the latter part of June 1933.—JAMES BOND, *Academy of Natural Sciences, Philadelphia, Pa.*

**Savannah Sparrow Nesting in West Virginia.**—On May 26, 1934, I found the nest of an Eastern Savannah Sparrow (*Passerculus sandwichensis savanna*) at Oglebay Park, which is about five miles from Wheeling, W. Va. Previous to this time, although this species had been recorded at several places in West Virginia during the spring and summer seasons, there were no nesting records for this state. I believe this extends the breeding range of the bird several hundred miles farther southward.

The field where I found the nest, has an elevation of approximately 1250 feet above sea level, and is one of the highest points in the immediate vicinity. Parts of the West Virginia Panhandle, which includes the region where the nest was found, are in the Upper Austral zone, while other parts are in the Transition zone.

The nest contained five eggs, one of which was more brilliantly colored than the others. Photographs of the nest were made.—THOMAS E. SHIELDS, *Wheeling, W. Va.*

**New and Rare Species from Cheshire and Sullivan Counties, New Hampshire.**—*Oceanodroma l. leucorhoa*. LEACH'S PETREL.—Other than a specimen captured in Alstead, September 29, 1897, and preserved in the Acworth Public Library (Allen, *Birds of New Hampshire*, 1903), there is a second specimen, found dead in Winchester about twelve years ago after a tropical disturbance (date uncertain) and preserved by Mr. Luman R. Nelson, who included it in a large collection donated to the Mount Hermon (Mass.) School for boys, where it has since become mislabeled or lost.

*Casmerodius egretta*. EGRET.—This species is considered by Forbush (*Birds of Mass.*, Vol. 1, p. 329) as a "rare or occasional summer visitor" to the state. An immature taken at Hinsdale August 4, 1933, by Mr. Nelson is the first county record, I understand.

*Florida caerulea*. LITTLE BLUE HERON.—East Westmoreland, an immature in white phase, shot in August, 1918, by W. Johnson; Mount Piscah, Winchester, an immature taken at the reservoir October 22, 1932, and another immature, taken at Hinsdale August 3, 1933, the latter two collected by Mr. Nelson.

This species is undoubtedly less rare than is believed, white herons being frequently seen in the southern counties of the state, as one at Bennington (Hillsborough Co.) July 10, 1934, and seven the summer of 1932.

*Pisobia minutilla*. LEAST SANDPIPER.—In the collection of birds at the Rindge Center Library, there is an unlabeled specimen taken about 1908 by Mr. George P. Wellington from one of the ponds in that town.

*Larus philadelphia*. BONAPARTE'S GULL.—An immature bird that visited a hen yard in Troy on August 5, 1933, was collected, and constitutes, I believe, a first county record. It is preserved in Mr. Nelson's collection.

While camping at Ashulot Lake (Washington Pond), Washington, August 12-19,



1934, the following Sullivan County records were made. This body of water enjoys a wilderness-like solitude where comparatively few people come. It accordingly abounds in wild life.

*Anas platyrhynchos*. MALLARD.—A single specimen flying up the channel the 17th.

*Oxyechus vociferus*. KILLDEER.—A bird the 16th feeding on the northeast shore.

*Calotrophorus s. semipalmatus* or *C. s. inornatus*. WILLET.—One in company with Yellow-legs the 14th.

*Totanus melanoleucus* and *T. flavipes*. YELLOW-LEGS.—Both rather common at the western side of lake where the lowering water daily uncovered new food.

*Pisobia minutilla* and *Ereunetes pusillus*. LEAST AND SEMIPALMATED SANDPIPERS.—One of the former observed the 14th, and several of the latter on that date and the 16th-18th, feeding with other shore-birds.

*Asio wilsonianus*. LONG-EARED OWL.—On the nights of the 15th-18th until well toward dawn, a pair came near camp and called incessantly.

*Melanerpes erythrocephalus*. RED-HEADED WOODPECKER.—The 17th, near the Marlow-Washington town line, an individual flew up from a harvested oat piece.—LEWIS O. SHELLEY, East Westmoreland, N. H.

**Notes from Central New York.**—The observations herein recorded were made by the writer at or in the vicinity of Waneta Lake, located on the boundary line between Steuben and Schuyler Counties, in central New York.

*Herodias egretta*. AMERICAN EGRET.—On August 3, 1933, a flock of five of these birds appeared at the southern end of Waneta Lake. The birds flew in from the northwest, alighted, and fed for about half an hour, after which they departed over the hills to the southward. On August 9 of the same season a lone bird was seen flying northward over the lake.

*Mycteria americana*. WOOD IBIS.—Dean I. A. Conroe of Alfred University and a group of boy scouts had their attention attracted to a large bird circling over the east shore of Waneta Lake on the morning of July 17, 1934. Upon being notified of the presence of the peculiar bird, I rushed out with binoculars in hand and identified it as an adult Wood Ibis. I had opportunity to observe the bird at rather close range, noting the long bill, the long out-stretched neck, and the pure white plumage, except for the black flight feathers and tail. The bird circled many times, apparently seeking a suitable place to land and to feed. Probably not finding conditions suitable, however, it disappeared in the direction of Seneca Lake.

*Haliaeetus leucocephalus*. BALD EAGLE.—Eagles are seen frequently in the summer, but no nesting sites have been found in the vicinity.

*Pisobia maculata*. PECTORAL SANDPIPER.—An early individual of this species was observed at the southern end of the lake on the morning of July 23, 1934. It was in company with a Least Sandpiper (*Pisobia minutilla*).

*Pisobia bairdi*. BAIRD'S SANDPIPER.—On August 11, 1934, a single Baird's Sandpiper was seen on the shore at the southern end of the lake. It was fortunately associated with Least, Pectoral, and Semipalmated Sandpipers, and was thus easily distinguished from the others.

*Hydrochelidon nigra surinamensis*. BLACK TERN.—The writer is unaware of the breeding of this species in the southern Finger Lakes region. The occurrence of an adult bird on July 14, 1932, therefore, seems noteworthy. The species is a fairly common, regular migrant on Waneta Lake. Over seventy-five individuals were counted at one time over the lake during a flight on the morning of August 18, 1932. In 1933, the migrating Black Terns appeared on August 11.

*Dendroica coronata*. MYRTLE WARBLER.—An early movement of Myrtle Warb-



lers in the midsummer of 1933 was probably correlated with the unusual drought conditions which prevailed over most of the breeding range of this species. Usually this bird does not arrive in central New York until middle or late September, but in 1933, three individuals appeared with other migrating Warblers on August 9, and the species was seen regularly thereafter, both in the Waneta Lake region and at Ithaca, N. Y.—R. T. CLAUSEN, *Dept. of Botany, Cornell University, Ithaca, N. Y.*

**Notes from Cape Romain, Charleston Co., S. C.**—On July 17, 1934, in company with Messrs. E. M. Burton and H. F. West, I spent the day in the wild life refuge at Cape Romain, about thirty miles northeast of Charleston, S. C. Last year six thousand eggs had been counted in the Royal Tern colony at the Cape, and, because of a storm during the last of May, 1934, we were anxious to find whether or not the Royals had nested again. Several things of interest were seen on our trip, and I quote from my day's notes:

*Thalasseus m. maximus*. ROYAL TERN.—Saw approximately 250–300 adults, but no nests or young. Evidently the colony had not rebuilt after the storm. In fact, the majority of the breeding colony had apparently moved elsewhere, leaving a comparatively small number of discourgaed or non-breeding birds. Possibly the breeding birds moved south to St. Helena Sound, Beaufort Co., S. C. They have not been located in any other colony nearer Charleston.

*Rynchops n. nigra*. BLACK SKIMMER.—About 600 adults. 175–200 nests, majority with three to four eggs. Young, from newly-hatched to medium size, enough to account for about fifty more nests.

*Sterna antillarum*. LEAST TERN.—About 75–80 nests, mostly two eggs each. Dozen or so newly hatched young and about three to four dozen running young, a few well grown. Several dozen Skimmer and Least Tern eggs storm-washed.

*Gelochelidon nilotica aranea*. GULL-BILLED TERN.—Three adults seen, on edge of Skimmer colony. One nest found. This well lined with shells and a piece of marsh root on one edge. A single young bird, three to four inches long; soft olive buff with dark streak-blotches; bill dark horn color, inside of mouth red. Adults observed close overhead, near and (one) on nest, brooding young. While one protected the young bird from the hot sun, a second took up position 10–15 feet away. The third adult settled down fairly close. Adults, bill black; feet appearing black but really very dark red. This noted by two observers when birds were low, directly overhead, and color of feet showed against white of belly.

This seems to be the second breeding record for the state, the first having been made by Dr. Frank Oastler in May, 1929.

*Haematopus palliatus*. OYSTERCATCHER.—Saw two nice flocks, in all about seventy birds. This fine species is undoubtedly to be found in larger numbers along this coast than at any other point in its range.—E. B. CHAMBERLAIN, *The Charleston Museum, Charleston, S. C.*

**Two Rare Birds in Georgia.**—*Sterna fuscata fuscata*. EASTERN SOOTY TERN.—On or about September 6, 1933, a bird of this species was picked up, either dead or in a dying condition, by an attendant of the Georgia State Hospital for the Insane, near Milledgeville in Baldwin County, Ga. It was given to Mrs. Ann F. Anderson of Milledgeville, who sent it to Mr. Arthur H. Howell of the U. S. Biological Survey for identification. This seems to be the first record this far inland, Baldwin County being about in the center of the state. There are several other records on the coast.

*Alle alle*. DOVEKIE.—Although the 1932 invasion of Dovekies is well and graphically described by Robert Cushman Murphy and William Vogt, in 'The Auk' for

July 1933, I came across an additional specimen when on a recent bird trip along the Georgia coast with Don Eyles. We were shown on April 6, 1933, a specimen owned and mounted by George H. Stevens. It had been picked up dying by his father, C. F. Stevens, at Frederica River, St. Simon's Island, on November 23, 1932. George Stevens says another one was found near Hampton River, St. Simon's Island, on the same date, by a cousin of his who captured it alive and then released it. As Georgia occurrences are very scarce it seems advisable to record these birds.—EARLE R. GREENE, *Atlanta, Ga.*

**Two Birds New to Alabama.**—On September 5, 1934, I saw at a pond below the old bed of Edgewood Lake, near Birmingham, one Baird's Sandpiper (*Pisobia bairdi*). The bird was noted to be between the Least Sandpiper and the Solitary Sandpiper in size, both of which birds had been seen on the same afternoon, while the latter was present during part of the observation of the Baird's. The call note—a mellow whistling or warbling sound—was certainly different from that of any other Sandpiper I have ever heard. From the White-rumped Sandpiper this bird differed in lacking the white rump and in the general grayish appearance. It was found feeding on mud flats at the edge of a small pond.

On August 31, I saw a Sycamore Warbler (*Dendroica dominica albilora*) in Elmwood Cemetery, Birmingham. It was approached to within ten or twelve feet and was observed with 8x glasses, the entirely white line over the eye was carefully noted.

So far as I can ascertain these records are the first for the state of Alabama.—HENRY STEVENSON, 207 S. 13th St. S. W., *Birmingham, Ala.*

**Notes from the Brownsville, Texas Region.**—The following records augment articles in 'The Auk,' 1925 pp. 432, 519, and 1926 p. 18. All observed in 1933.

*Spatula clypeata*. SHOVELLER.—Numerous the end of April.

*Nyroca valisineria*. CANVAS-BACK.—One May 1.

*Erismatura jamaicensis rubida*. RUDDY DUCK.—Seven April 28.

*Pandion haliaetus carolinensis*. OSPREY.—One May 1.

*Actitis macularia*. SPOTTED SANDPIPER.—One May 2.

*Micropalama himantopus*. STILT SANDPIPER.—Several dozen April 29.

*Recurvirostra americana*. AVOCET.—16 seen on April 29, most of them in pairs.

*Steganopus tricolor*. WILSON'S PHALAROPE.—Six April 29.

*Larus argentatus smithsonianus*. HERRING GULL.—Two April 29.

*Larus atricilla*. LAUGHING GULL.—Over fresh water April 28 and May 1 within a mile of Brownsville.

*Myiarchus tyrannulus nelsoni*. MEXICAN CRESTED FLYCATCHER.—I found it rather a quiet bird uttering low, throaty calls quite different from those of the Crested Flycatcher (*Myiarchus crinitus mexicanus*).

*Corvus cryptoleucus*. WHITE-NECKED RAVEN.—Two were seen separately, also a flock of 15, on April 29.

*Baeolophus atricristatus*. BLACK-CRESTED TITMOUSE.—I heard it calling "péto" repeated several times, just like the Tufted Titmouse (*B. bicolor*).

*Auriparus f. flaviceps*. VERDIN.—Call brusque, double, and Flycatcher-like.

*Wilsonia canadensis*. CANADA WARBLER.—April 30.

*Xanthocephalus xanthocephalus*. YELLOW-HEADED BLACKBIRD.—One April 27.

*Molothrus a. ater*. COWBIRD.—Observed on the back of a mule, and other times on cattle.

*Tangavius aeneus involucratus*. RED-EYED COWBIRD.—I saw some attitudinize while on the ground, cocking head and tail up as does the Great-tailed Grackle (*Cassidix m. mexicanus*).—GEOFFREY CARLETON, 45 Wall St., *New York City*.

**Records of Rare Michigan Birds, 1934.**—*Canachites canadensis canace*. CANADA SPRUCE GROUSE.—This species is gone from most of the area in which it formerly occurred in Michigan. A. D. Tinker and I considered ourselves fortunate to observe an adult female and four immature birds, five miles southeast of Deer Park in the Superior State Forest in Luce County, on August 31, 1934.

*Picoides arcticus*. ARCTIC THREE-TOED WOODPECKER.—A. D. Tinker and I collected a pair on the jack-pine plains, four miles east of Deer Park in the Superior State Forest, in Luce County, on August 29, 1934. These were the only ones observed, though the species is known to be scattered sparingly throughout the region.

*Penthestes hudsonicus hudsonicus*. HUDSONIAN CHICKADEE.—From August 26 to 29, 1934, A. D. Tinker and I found this species fairly common about four miles east of Deer Park in the Superior State Forest, in Luce County, but on August 30 and 31 none were seen. The specimens collected were from the jack-pine plains, none being found along the Two Hearted River.

*Vermivora leucobronchialis*. BREWSTER'S WARBLER.—I took a male nine miles northeast of Battle Creek by the Battle Creek River, in Calhoun County, on May 20, 1934. Sight records of this hybrid are not rare in southern Michigan, but not more than eight specimens have been collected.

*Agelaius phoeniceus arctolegus*. GIANT RED-WING.—On June 13, 1934, while Donald Douglass and I were searching the marshes of the North Cape in Monroe County for Duck nests (as a part of the survey of Duck breeding conditions undertaken by the Michigan Department of Conservation) we heard a Red-wing with an unusual song. Examination of this specimen at the University Museum showed it to be a male of the above race, a very rare sub-species in the Southern Peninsula.

*Spiza americana*. DICKCISSEL.—During the summer of 1934 this species was a common resident in the southern counties of Michigan. Usually it is uncommon or rare, though occasional waves of these birds have appeared in former years. I personally noted the species in Monroe, Wayne, Washtenaw, Oakland, Livingston, Tuscola, Jackson, Calhoun, and Kalamazoo Counties. My earliest specimen was taken at East Rockwood, in Monroe County, on May 31, 1934, and the latest at Fish Point, Tuscola County, on July 17, 1934. The Dickcissel overflowed into the marshes for the breeding season of 1934, though formerly it nested almost exclusively in alfalfa fields.

*Pinicola enucleator* subsp. PINE GROSBEAKS.—On February 25, 1934, A. D. Tinker, T. D. Hinshaw and I took three Pine Grosbeaks two miles north of Whitmore Lake in Livingston County. Two were females of the eastern subspecies (*Pinicola enucleator eschatosus*) as identified by J. Van Tyne, while the third was a male of the western subspecies (*Pinicola enucleator leucura*). The females were so strongly marked with reddish-brown that they were thought to be old males before the gonads were examined. They represent the extreme reddish variation of the female plumage. The male had none of the rosy color of an old bird.

*Ammospiza caudacuta nelsoni*. NELSON'S SPARROW.—While A. D. Tinker and I were at Portage Lake marsh in Jackson County, on September 23, 1934, I observed four of these birds, and was able to collect one female. We know of three previous autumn specimens from Michigan, but no spring ones. The specimen we took is the first one recorded from the Lower Peninsula in forty-one years, the last having been taken by J. Claire Wood in Wayne County, on September 27, 1893 (Auk, XVII, No. 4, Oct. 1900, p. 391).

*Passerherbulus caudacutus*. LECONTE'S SPARROW.—T. D. Hinshaw and I collected a female on May 11, 1934, and a male on May 12, at the Munuskong Bay State Park in Chippewa County. These are the first positive records of this species in Michigan.

Later in the summer other observers found the species in the same locality.—  
RICHARD E. OLSEN, *Museum of Zool., Ann Arbor, Mich.*

**Notes from Central Illinois.**—The following records refer to species, which are now uncommon or rare in central Illinois. The writer extends his appreciation to Dr. Alvin R. Cahn, assistant professor of zoology at the University of Illinois, Urbana, Ill., for permission to publish four of the six records here presented.

*Pelecanus erythrorhynchos*. WHITE PELICAN.—One adult was found dead on May 17, 1934, on the bank of a dredge ditch southwest of Sidney, Champaign County, by Vernan Mumm of that city. It was prepared for mounting by Guy Day and was examined by Dr. Cahn. The bird was thought to have perished in the violent dust storm which preceded its discovery.

*Cygnus columbianus*. WHISTLING SWAN.—Eight adult and two immature birds were present on Lake Decatur, at Decatur (Macon County), on about November 7, 1931. Their presence was reported to Dr. Cahn by Mr. D. B. Gorham of that city. He enclosed an excellent newspaper photograph, which showed the birds passing overhead as they left the lake.

*Mareca penelope*. EUROPEAN WIDGEON.—Four individuals were noted on about fifteen different days during March and April, 1931, on the Smith Duck pond near Mt. Zion, Macon County, by Mr. P. S. Smith, who obtained a fine series of photographs (now in the possession of Dr. Cahn) of three of the birds. One of these birds was seen by Mr. C. M. Powers who reports one from Lake Decatur, and by Mr. D. B. Gorham, to whom Dr. Cahn is indebted for the information here given. Mr. Gorham adds that Mr. Smith stated that some years ago he had killed a bird of this species on his pond.

*Falco peregrinus anatum*. DUCK HAWK.—Two sight records are as follows: one adult female seen over Brownfield's Woods, three and one-half miles northeast of Urbana, Champaign County, on April 7, 1934, by Mr. A. C. Twomey, an assistant in zoology at the University of Illinois; one immature bird seen by the writer September 23, 1934, near University Woods, not far from the site of the above record.

*Tyto alba pratincola*. BARN OWL.—One adult was observed for a half hour on June 1, 1929, on the golf course of the Urbana Country Club, north of Urbana, by Dr. Cahn and Mr. J. T. Kemp. It was being "pestered" by Crows at the time of observation.

*Nyctea nyctea*. SNOWY OWL.—One adult was seen November 17, 1932, in University Woods, northeast of Urbana, by Mr. D. J. Davis.—CHARLES THEODORE BLACK, 407 E. Daniel St., Champaign, Ill.

**Unusual Water Birds in the Lake Winnebago, Wisconsin, Area.**—On June 12, 1934, Mr. I. J. Perkins of the Milwaukee Public Museum staff and I bogged through the marsh on the south end of Lake Winnebago within the city limits of Fond du Lac, Wis. We were amazed at the large numbers of Ducks of different species that we saw as compared with the numbers seen on or about the same date during former years. Ordinarily, one would expect to find a half dozen pairs of Blue-winged Teal and Mallards and a few Shovelers. Upon the above date we observed about 75 Blue-winged Teal all males with one exception. We saw one female at the head of her little flotilla of young and found the nest and eggs of another. We also saw one female Gadwall, one pair of Pintails, several pairs of Baldpates, one pair of Wood Ducks, one male Shoveler, five Lesser Scaup and numbers of Mallards and Black Ducks. We also saw two Hooded Mergansers and a pair of Red-heads. While inspecting this lot with the glasses, we noticed a fine male European Widgeon, and a



single Hudsonian Godwit was busily feeding out on a mud bar. These last two birds were secured as Museum specimens. The Widgeon was in the molt and the testes showed no evidence of recent sexual activity. Inasmuch as the bird kept to itself and we observed no mate, we decided that it was a non-breeding bird. The Godwit proved to be a fine male with enormously developed testes but long waiting disclosed no mate. Far out on an inaccessible mud flat a flock of over 100 Terns (either the Common or Forster's) rested and gave no opportunity for a shot. Out there were also several large flocks of small shore-birds. I think they were Semipalmated Sandpipers but have no proof. I have never observed either the Common or Forster's Tern on this marsh on this date.

The unusually large congregation of water-fowl at this point may be accounted for by reason of the unprecedented drought which has undoubtedly deprived many species of breeding and feeding grounds and driven them to concentrate at certain favorable spots.—O. J. GROMME, *Milwaukee Public Museum, Milwaukee, Wis.*

**A Practical Method of Degreasing Bird Skins.**—During the past year I have employed a method of degreasing bird skins that is apparently not widely used but which is exceedingly practical and efficient. A brief outline of the procedure is as follows:

The bird is skinned as usual and the fat carefully scraped from the skin, after which it is stuffed as a completed skin and allowed to dry in its cotton shroud for about six weeks. The fully prepared and labelled skin (several may be degreased simultaneously) is now placed in a vat or wash-boiler containing several gallons of clear white gasoline such as is obtainable at most filling stations. It is allowed to remain here for several weeks during which period the skin is removed several times, drained, and placed in fresh gasoline. Finally it is removed and drained head downward for about an hour after which it is placed on a flat pile of newspapers which are allowed to soak up the gasoline over night. The newspapers are changed until the specimen is thoroughly dry, whereupon the process is completed. The feathers may require a little stroking to restore them to their former fluffiness but this requires only a few moments in the case of well-made skins.

Gasoline that has been used to degrease skins is strained and poured into the tank of the family automobile thus reducing the cost of degreasing to almost nothing.

It is believed that this method is far superior to that of degreasing freshly skinned birds in gasoline (or other solvents) before making them up into study skins. In the latter case it is a tedious and often difficult task to dry out and restore the feathers to their normal position and fluffiness. In the present method, however, the arrangement of the feathers is never disturbed by the gasoline and no corn meal or other drying material whatever is used. Furthermore gasoline will not penetrate a fresh wet skin nearly as well as it will a dry one, even though alcohol is added to increase miscibility in the former case.

In large greasy birds it is desirable to drill holes into the radius, ulna and tarsometatarsus so that the fat within may be more quickly removed by the gasoline.

I make it a matter of routine to degrease all fat specimens in the manner here described. This has been done successfully with various types of birds including Grebes, Ducks, Geese, Rails, Plovers, Woodpeckers, Sparrows, Thrushes, etc.

In the case of white birds such as Terns, it is necessary to degrease the specimen before the fat on the feathers has had time to oxidize and turn brown; there is no danger of this within a few weeks, however. Brown stains on the feathers of old skins can be removed by mopping with ether.

The only reference that I have found concerning the degreasing of made-up skins without relaxing them is one sentence by R. M. Anderson (Bul. 69, Biological Series No. 18, p. 105, National Museum of Canada) who makes the statement that "Small bird skins may also be cleaned in this manner." Anderson recommends the use of turpentine in the gasoline (Spirits of turpentine, 4 ounces; alcohol, 1 pint; gasoline, 2 gallons). It is my experience that this is entirely too much turpentine and that instead of restoring the natural gloss to the feathers it may give them an unnatural one. It is recommended that turpentine be used in much smaller proportions if at all.

It cannot be over-emphasized that degreasing skins in gasoline is not a substitute for carefully scraping the fat from the inside of the skin before the bird is stuffed. However, it is impossible to remove all the fat by scraping alone, hence the need of a treatment involving the use of a fat solvent such as gasoline.

Mounted birds can also be successfully degreased by the method outlined here for study skins.

I have used various methods of degreasing skins but the present one differs from the others in that it is preëminently satisfactory.

It should perhaps be pointed out that large quantities of gasoline should be used only with proper precautions against fire hazard. Such degreasing operations are best carried out in a small building at a safe distance from dwellings or other structures. Vats containing gasoline should, of course, be kept covered.

It is gratifying indeed to one who has suffered much with fat bird skins to note the brownish discoloration taken on by a vat of gasoline in which a number of fat skins have soaked for several days, and the progressively fainter yellowing of subsequent changes of the solvent.—GEORGE E. HUDSON, *Dept. of Zoology and Anatomy, University of Nebraska, Lincoln, Neb.*

**Notes on Audubon's Ornithological Biography.**—The "delineation" entitled "Eggers of Labrador" in volume III of Audubon's 'Ornithological Biography' breaks off abruptly in the middle of a sentence. The final sentence in the manuscript abounds in corrections, and the printer could not or did not trouble to decipher them. Reference to this manuscript, in the writer's library, shows that apparently Audubon had difficulty in expressing his thoughts. The sentence should read (the italicized portion being unpublished):

"Had not the British Government long since passed strict laws of intervention against these marauders, and laid heavy penalties on all those caught in the act of landing their cargoes at New Foundland and Nova Scotia; which I have been informed is still enforced, I might *perhaps have been induced to have ere this humbly have prayed in behalf of the feathered tribe before the proper authorities in England for the extinction of the wasteful if not criminal barbarity of the Eggers of Labrador.*"

The first two volumes of 'Ornithological Biography' were reprinted in America. For these American reprints the type was entirely reset. At least two editions of Volume I appeared in Philadelphia, one in 1831 with the imprint, "Judah Dobson, Agent, 108 Chestnut Street; and H. H. Porter, Literary Rooms, 121 Chestnut Street. MDCCCXXXI." The second American edition was published the following year, the imprint reading: "Philadelphia: E. L. Carey and A. Hart—Chestnut Street. MDCCCXXXII." Professor Herrick records the latter imprint, but gives the date as 1835. Volume II was reprinted in Boston in 1835 and is correctly cited by Herrick.

Volume III was prepared for the American trade by pasting a printed slip on the half-title. This slip, which does not seem to be recorded, reads, "Entered according

to the Act of Congress, in the year 1836, by John James Audubon, in the Clerk's Office of the District Court of the Southern District of New-York, and copyright secured."

The last two volumes seem to occur only in the original Edinburgh edition. It might be pointed out that Volume V is dated MDCCCXXXIX (1849). It should, of course, be 1839.—ALBERT E. LOWNES, *Providence, Rhode Island*.

**Correction.**—In a general note on bird mortality on the highways (Auk, October, 1934), I stated (p. 538) that a Sennett's Thrasher was picked up in Arizona. Due to the fact that this record is apparently the first for that state and since the specimen on which it was based was very imperfect I wish to cancel the record.—FREDERICK M. BAUMGARTNER, *Cornell University, Ithaca, N. Y.*

# RECENT LITERATURE.

**Hellmayr's 'Catalogue of Birds of the Americas.'**—The long awaited seventh part of this notable work<sup>1</sup> has appeared, covering the families Corvidae to Sylviidae in almost the order of the A. O. U. 'Check-List,' with the neotropical family Zeledoniidae between the Turdidae and Sylviidae. The volume follows exactly the style of its predecessors, with the same abundance of foot notes discussing characters and relationships of many of the forms, and will, we are sure, prove of the same importance to systematic students of the avifauna of the Americas. It brings the subject up to July 1, 1932.

It is impossible in the space at our disposal to discuss all of the innovations in systematic arrangement and in nomenclature which are presented by Dr. Hellmayr in these pages and we shall have to be content, for the most part, with a comparison of his findings in regard to North American Birds with those of the A. O. U. Committee, as expressed in the fourth edition of the 'Check-List.'

The author is very conservative in his treatment of genera six of those recognized in the 'Check-List' being merged with others—*Pensthes* and *Baeolophus* with *Parus*; *Telmodytes* with *Cistothorus*; *Nannus* with *Troglodytes*; *Arceuthornis* with *Turdus*; *Corthylio* with *Regulus*—going back in every case but one to the treatment of the first edition of the 'Check-List,' in 1886, so does the pendulum swing from one extreme to the other and back again! Generic division is largely a matter of personal opinion and while there is much to be said in favor of some of Dr. Hellmayr's actions it seems a pity that two well-marked groups like the Long- and Short-billed Marsh Wrens should have to be merged simply because of the discovery of a more or less intermediate species in South America. Among purely neotropical genera we find *Pheugopedius* and *Thryophilus* merged with *Thryothorus*.

Dr. Hellmayr apparently rejects the reviewer's argument which was adopted by the A. O. U. Committee, that the type localities of species based on Catesby should be decided on the first revisor principle and not by arbitrarily accepting Charleston as the type locality (cf. Auk, 1929, pp. 447-454). Thus he adopts Oberholser's name *bromia* for the Northern Blue Jay restricting *cristata* to the Florida bird. On the other hand, however, he rejects the same author's name *cookei* for the Northern White-breasted Nuthatch ruling that in this case the Charleston bird is referable to the northern race—a good example of the uncertainty of this method of disposing of the names based on Catesby, while the first revisor principle would effect an immediate and permanent settlement.

While three full species of the 'Check-List' are reduced to subspecies of European species—*Nannus hiemalis* to *Troglodytes troglodytes*; *Corvus brachyrhynchos* to *C. corone* and *Regulus satrapa* to *R. regulus*; *Certhia americana*, for years regarded as a subspecies of the European *C. familiaris*, is set up as a distinct species. Other species reduced to subspecies are: *Pica nuttalli* to *P. pica*; *Amphelocoma californica* (and all its races including also *A. insularis*) to *A. coerulescens* (the Florida Jay); *Xanthoura*

<sup>1</sup> Catalogue of Birds of the Americas | and the Adjacent Islands | in | Field Museum of Natural History | including all species and subspecies known to occur in North America, | Mexico, Central America, South America, the West Indies, and | Islands of the Caribbean Sea, the Galapagos Archipelago, | and other Islands which may be Included on | Account of their Faunal Affinities | By | Charles E. Hellmayr | Associate Curator of Birds | Part VII | Corvidae, Paridae, Sittidae, Certhiidae, Chamaeidae, | Cinclidae, Troglodytidae, Prunellidae, Mimidae, | Turdidae, Zeledoniidae, Sylviidae | Wilfred H. Osgood | Curator, Department of Zoology | Editor | Field Museum of Natural History Publication 330. Zool. Series, Vol. XIII, Chicago, U. S. A., November 15, 1934, pp. i-vi + 1-531.



*luxuosa* to *X. yncas*; *Perisoreus griseus* and *obscurus* to *P. canadensis*; *Thryomanes brevicauda* to *T. bewicki*; *Turdus confinis* to *T. migratorius* and, most amazing, *Corvus brachyrhynchos caurinus* transferred as a subspecies to the Fish Crow (*C. ossifragus*). While this northwestern coast bird has been regarded as a distinct species by some and called a "fish crow" on account of habits and voice, it has nothing to do with the Fish Crow of our southern Atlantic coast. The latter is uniform highly glossy above and below of a bluish or greenish cast, while *caurinus* is a duller bird with a somewhat shell-like pattern on the back and of a reddish-purple or violet cast, resembling in all these characters the common American Crow (*C. brachyrhynchos*) (cf. Rhoads, Auk, 1893, p. 21; Stone, Auk, 1903, p. 271). The names of two forms of *Auriparus* are changed, as a result of Grinnell's study of the type of *A. flaviceps*, and *Baeolophus i. griseus* becomes *Parus i. ridgwayi* as a result of lumping *Baeolophus* with *Parus* there being a prior *Parus griseus*.

All of these changes, it will be noticed, are due to a difference of opinion as to the ornithological relationship of species and subspecies and there is only one change in a North American bird name due to "nomenclature" (which is usually blamed for all our changes in names!) and this is the use of *sordida* in place of *sieberi* as the specific name of the Arizona Jay the former name having priority. This is certainly a matter for congratulation! Dr. Hellmayr recognizes all of the subspecies of the 'Check-List' with the exception of *Poliophtila melanura abbreviata* which he regards as identical with *P. m. margaritae*, while in addition he recognizes four forms of *Perisoreus canadensis* not included in the 'Check-List' i. e.; *nigricapillus*, *barboursi*, *albescens* and *rathbuni*. Also *Sialia sialis grata*, *Catherpes mexicanus polioptilus* and *Cyanosylvia suecica robusta* (as distinct from *S. s. suecica*). Six races described after the 'Check-List' was in press, mainly by van Rossem, are also recognized.

While it would be ungenerous to offer any criticism of such a welcome, useful, and painstaking work as that which Dr. Hellmayr is producing for us, we necessarily cannot all see eye to eye on all matters of ornithological relationships and the methods of expressing them. Personally we find no reason for relegating certain apparently distinct forms to the grade of subspecies of other species even if we abandon entirely the criterion of intergradation as our distinguishing mark between species and subspecies (see *antea* p. 31) but perhaps that is exactly what Dr. Hellmayr has done! At any rate in discussing the San Lucas Robin which, so far as we know, has never been claimed to intergrade with *Turdus migratorius propinquus* he says, "obviously merely an excessively pale race of the Robin" and makes no claim for intergradation. Apparently Dr. Hellmayr's groupings are based on the "Formenkreis" idea rather than upon intergradation.

At any rate we offer our hearty congratulations and thanks for another volume of this indispensable work and the hope that the author may be able to complete his task at no very distant date. The eighth part we are informed is already in type.—W. S.

**Friedmann on 'The Instinctive Emotional Life of Birds.'**—This notable paper<sup>1</sup> is, we are informed, the first of a series of studies on 'The Evolution of Instincts and Emotions' arranged and edited by Dr. Ben Karpman and was read before the Washington Society for Nervous and Mental Diseases.

Beginning with an historical account of the literature of the subject Dr. Friedmann finds one group of writers, wholly uncritical, "who assume an anthropomorphic attitude and endow birds with all of the virtues and, curiously enough, none of the

<sup>1</sup> The Instinctive Emotional Life of Birds. By Herbert Friedmann. The Psychoanalytic Review, Vol. XXI, Nos. 3 and 4, July and October, 1934. Reprint, pages 1-57.

vices of humankind. On the other hand there are those who explain all non-human behavior on the basis of physiological mechanics and deny to other animals anything even remotely savoring of psychic attributes." To one who has studied birds as birds, he adds, neither of these approaches seems justifiable.

In discussing instinct and emotion he explains that if action is purely instinctive, and is frustrated, the animal tries again and again or stops and does something else, without becoming excited or irritated; but, if the action is the result of emotion, frustration leads to irritability, excitement and anger. A House Wren trying to force a long twig sideways into the hole of a bird box is an example of the former while many human examples are to be found of the latter; birds, however, seem to possess only instinctive emotions.

In comparing human and avian minds the author calls attention to the attitude of birds toward sickly young. Instead of showing more concern and attention in their time of need, as humans would do, they quickly become indifferent and later irritated and even hostile to the unresponsive young. The instinctive care of the young Cuckoo, still in the nest, by the foster parents and their indifference toward their own young which have been thrown out, although still in full view, is another example of this difference in mental attitude.

With such introductory discussion Dr. Friedmann goes on to consider Fear, Greed, Social Emotions, and Cruelty, which he groups together as Permanent Emotions; and Courtship Behavior, and Love, which he calls Cyclical Emotions. There is also full discussion of the Loss of Instinctive Emotions, especially with respect to Parasitism, a subject to which Dr. Friedmann has given a great deal of attention.

In his conclusions he states that "the great similarity between so many aspects of avian and human behavior suggests (as it might be expected) that human conduct when stripped of its civilizing morals, learning, and other cultural embellishments, etc., is basically not very different from that of birds." While we are unable in the space at our disposal to do justice to Dr. Friedmann's paper, which is so full of meat that it should be read in its entirety, we must mention one illustration that he cites of the errors that observers without training in interpreting animal behavior will fall into. This is the case of the so-called "broken-wing ruse" practiced by the Killdeer and other birds. This is popularly explained as a device to draw an intruder away from the nest or young, but Dr. Friedmann considers it as apparently the result of conflict between the emotion of fear occasioned by the approach of an apparent enemy, and the reproductive emotion which makes the bird loath to leave the nest. The conflict of emotions produces muscular inhibition or inability to fly, until the fear emotion gains control as the bird gets farther and farther from the nest; an illustration of how psychic factors may induce physical changes. The reviewer has had abundant experiences with the Killdeer which would seem to substantiate Dr. Friedmann's views, at least in part. We have found that birds with newly laid eggs rarely practice the broken-wing ruse while those with well incubated eggs do so, and that birds with full grown young have also been seen to practice the "ruse," an action which our author, in the case of another species, terms "a habit lingering beyond its usual duration."—W. S.

**Richmond's 'Quest for Birds.'**—So many bird students have felt it necessary to publish the results of their observations in a more or less popular way that when we picked up the present volume<sup>1</sup> we supposed, influenced perhaps by the title, that

<sup>1</sup> *Quest for Birds | The Problems and Pleasures | of an English Bird-Watcher | By | W. K. Richmond | London | H. F. & G. Witherby | 326 High Holborn W. C. 1. Pp. 1-196, 1 plate. Price 7 shillings 6 pence net.*

it was simply another of these accounts. However the preface, a part of a book which too few persons read, at once attracted our attention. Here the author states that bird books are of two sorts, "those intended to be informative and those which are calculated largely for pleasure" and that "the trouble with most of them is that the authoritative books are painfully uninteresting, and the entertaining ones so empty and superficial as to be quite valueless after a first reading." He adds that his book is very ambitious as it endeavors to serve both ends.

He later speaks of the various sides of ornithology. There is the lover of the outdoors to whom birds "are necessary to complete his rustic ensemble;" there is the man engaged in a systematic study of bird plumage; the artist who takes a keen delight in their form and color; and another who studies birds from a strictly scientific viewpoint. Therefore he defines ornithology as "a collection of smaller studies centered around an ill-defined core rather than a separate study in itself, and the only real core is the highly vague love for and pleasure in birds, which begins as an offshoot of aestheticism and ends as a branch of science." While "the scientific ornithologist may possess half the truth, the plain bird watcher certainly possesses the other half; but neither is entirely convincing."

Mr. Richmond admits that the scheme of his book requires that some of his chapters shall be highly contentious, and adds that "the study of birds will be a poor thing when people cease to argue about them."

The seriousness of the problems which he discusses may be realized from the titles of his chapters: The English Tradition in Ornithology; On Seeing New Birds; The Balance (?) of Birds; A Northumbrian Bird Sanctuary; Spring Song; The Territory Theory and its Fallacies; Nesting Birds; Merely a Sewage Farm; Instinct, Intelligence and Character among Birds; The Common; Past and Present; Problems of the Species; Seen on an Essex Estuary; and Frost.

It is impossible in the space at our disposal to follow Mr. Richmond's interesting comments on the varied subjects of which he treats but we cannot but quote his attitude toward gunning, a practice which seems today to be worse in England than in America, although most of what he says is equally applicable to our own country. "It is the gun," he claims, "as much as anything else, which has wrecked our natural bird-sanctuaries, and only where the gun is forbidden is there anything like a return to the older and more natural state. For the last four hundred years the gun has taken an ever increasing toll of our bird life. Wherever one goes throughout the land one hears the sound of a gun. Escape it you cannot, and of all these multitudinous shooters, experience shows that for every sportsman out after rabbits or partridge, there is a fool who is ready to shoot any bird that comes near him." This "fool" is the source of all the trouble and his elimination is a serious problem for both sportsman and bird lover.

In discussing song and territorialism he says, "It is essential to realize that the origin for song, the reason for its growth, the functions of song, and the particular reasons for song, are all distinct problems in themselves," and when one writer states that "song is not essentially an expression of emotion we must not read into it a contradiction of the belief that song originated in *joie de vivre*."

Our author is evidently well read on his subject and has had an abundant field experience which, combined with an ability to present his ideas and facts in an interesting way, has enabled him to realize in a marked degree his object as set forth in his preface. It is a book that all ornithologists in his broad conception of the word should read.—W. S.

Chisholm's 'Bird Wonders of Australia.'—Most of our readers are doubtless

acquainted with Mr. Chisholm's popular writings on Australian birds and will welcome another work from his pen. The present volume,<sup>1</sup> he tells us, was prepared at the request of his publishers, with the idea of presenting accurate accounts of the peculiar habits and actions of certain Australian birds which had often been grossly exaggerated or misconstrued by careless writers of the past. They could not have selected a better author for such a work than Mr. Chisholm who is not only an ornithologist of repute but an experienced writer on popular natural history, and his book fully meets the idea of his publishers. From the grotesque portrait of the Frog-mouth, which forms the frontispiece, to the photographs of the mud, retort-like, nests of the Fairy Martins, the numerous illustrations present the unusual in bird life while the author's chapters on Lyre-bird Revels; Birds that Bury their Eggs; Queer Relations of Birds and Insects; Feathered Players and Dancers, etc., etc., tell us, from personal observation, of the peculiar actions of the birds of a peculiar land.

Of especial interest is the account of young blind Cuckoos throwing the young of their foster parents from the nest which was done repeatedly under the eyes not only of the author but of a number of bird students and the Governor of the province of New South Wales. The latter dignitary at first suggested the advisability of throwing out the Cuckoo's egg but after careful consideration said "perhaps it will be as well to let nature take its course." In one case described by Mr. Chisholm the young Cuckoo was in a closed nest but managed to back up to the entrance with a young Warbler on his hollowed back and eject it from the opening. This was done several times after the Warbler had been replaced in the nest, both young birds having not yet opened their eyes! The same reaction has been gained by placing sticks or any object on the back of the young Cuckoo which is very sensitive and the bird immediately tries to throw off anything which touches it.

The appropriateness of the title for one chapter 'The Land of Parrots' is appreciated when we learn that there are no less than fifty-nine species found in Australia and, in spite of the sad destruction of numbers of these beautiful birds, since the time of John Gould, it is refreshing to know that "considerable numbers" still remain and that Australia is still a "land of Parrots." A chapter on "Why Birds Dress Up" is a discussion of Hingston's 'The Meaning of Animal Colour and Adornment' and the author's experience in applying Hingston's theories<sup>2</sup> to Australian birds.

But it is impossible to even list the many interesting matters discussed by Mr. Chisholm and we can only recommend his book to those interested in foreign birds and in the broader problems of ornithology.—W. S.

**Sutton's 'Eskimo Year.'**—Some months ago (*Auk*, 1933, p. 498) it was our privilege to review Dr. George Miksch Sutton's account of his ornithological observations and collections made on Southampton Island during a residence of a year in that remote spot. Now we have his personal account<sup>3</sup> of his experiences during that sojourn with the Eskimos.

He tells us in a brief foreword that his book "is not a dissertation on Arctic beasts and birds but a study of relationships and of human adjustment, but first of all it is the story of a glorious adventure in a glorious country." This admirably describes

<sup>1</sup> Bird Wonders of | Australia | By | Alec H. Chisholm | F. R. Z. S., C. F. A. O. U. | With Fifty-eight Illustrations | Australia | Angus & Robertson Limited | 89 Castlereagh Street, Sydney | 1934. Pp. i-xiii + 1-299. Price 6 shillings.

<sup>2</sup> See F. H. Allen, *Auk*, October, 1934, p. 454.

<sup>3</sup> *Eskimo Year* | A Naturalist's Adventures in the Far North | By | George Miksch Sutton | Illustrated | with Drawings and Photographs by the | Author and with Photographs by several | Men of the North Country | New York | The Macmillan Company | 1934. Pp. i-xi + 1-321. Price \$3.00.



this very interesting volume. Dr. Sutton writes so clearly and so directly that we seem to see before us the incidents and the individuals that he describes and we doubt if any other sketch gives one such an intimate picture of the Eskimos and of their daily life and character.

While it may not be an account of Arctic beasts and birds they figure not a little on its pages, and, although the author says that he is not an ethnologist, ethnologists will read his book with interest and profit, while anyone interested in travel in far off places, whether he be explorer, ornithologist, or what you will, will find 'Eskimo Year' a most attractive piece of reading.

Dr. Sutton, as is well known, is an artist as well as an ornithologist and his pages are enriched by numerous pen sketches of birds and mammals, while excellent photographs of Eskimos, arctic scenery, etc., make many attractive plates.—W. S.

**Meise's Birds of Manchuria.**—This excellent report<sup>1</sup> is based on a study of a collection of 2400 bird skins obtained by Walter Stoltzner on an expedition through northern Manchuria, in the years 1927-1929, and now in the Museum für Tierkunde at Dresden.

The author wisely includes additional species mentioned as occurring in Manchuria by other writers and no less than 333 species together with a number of additional subspecies are included in the report. There is a brief account of the character of the Manchurian avifauna and of previous investigations that have been made with a complete list of localities, which will prove of great value to future workers on the fauna.

In the main text each species is marked as resident, transient, breeding species, etc., and there is a list of the specimens obtained by Stoltzner with a discussion of relationships and peculiarities of each form with detailed measurements.

We notice eight new forms, all from Manchuria unless otherwise stated, *Parus cyanus apeliotes* (p. 31), *Locustella certhiola sparsimstriata* (p. 39), West Siberia; *Ianthocincla davidi chinganica* (p. 41); *Saxicola torquata kleinschmidti* (p. 44) Szetschwan; *Hirundo dauria gephyra* (p. 48) Szetschwan; *Riparia riparia stoltzneriana* (p. 48); *Dryobates hyperythrus miniakorum* (p. 53) Tatsienlu, Szetschwan; *Dryobates kizuki permutatus* (p. 53).

Dr. Meise has made a welcome addition to our knowledge of the avifauna of northern Asia which will probably stand as our authority on the birds of Manchuria for many years to come.—W. S.

**Stone and Roberts on Matto Grosso Birds.**—This annotated list<sup>2</sup> of 157 species and subspecies is the catalogue of a collection of birds obtained by Mr. J. A. G. Rehn in the vicinity of Descalvados, Brazil, from June 16 to September 19, 1931. More than four-fifths of the forms known from this locality are represented in the collection, and, since those not obtained at this time but previously recorded are named in an appended list, the paper is, in effect, a complete roll of the known avifauna of this restricted locality. One species, *Phaeotriccus hudsoni*, is recorded for the first time from Brazil; others are noted for the first time from the locality. Critical remarks are made on the plumages of certain species or specimens and field notes are added from the collector's journal.

<sup>1</sup> Die Vogelwelt der Mandschurei Von Dr. Wilhelm Meise. Abhandl. und Berichte der Museen für Tierkunde und Völkerkunde zu Dresden. Band XVIII (1931-34.) No. 2. Pp. 1-86, Leipzig, July 5, 1934. Price 20 R. Marks.

<sup>2</sup> Zoological Results of the Matto Grosso Expedition to Brazil in 1931,—III. Birds. By Witmer Stone and H. Radclyffe Roberts. Proc. Acad. Nat. Sci. Philadelphia Vol. LXXXVI, pp. 363-397. August 16, 1934.

With rare exception the species encountered were in winter plumage, not breeding at the time. One North American migrant, the White-rumped Sandpiper, appears in the list, having been obtained on September 4, a date interestingly but two days in advance of that on which it was found by Wetmore in 1920 at Puerto Pinasco, Paraguay, somewhat to the southward of Descalvados. Other northern birds found by Wetmore were not recorded by Rehn, though there is little doubt that some of them, at least, pass through this region on migration. Several typographical errors in the scientific names are noted in this important contribution to the regional ornithology of South America.—J. T. Z.

**Menegaux's 'Birds of France.'**—The second volume of this popular work<sup>1</sup> on the birds of France has appeared and follows exactly the style of its predecessor, reviewed in these columns for April, 1933, p. 242. The first half of the volume is devoted to keys and synopses of the species of the various orders of "water birds," with paragraphs devoted to the description, biology, and distribution of all species not figured in the latter part of the work, with full measurements, and numerous text figures. There follows a consideration of the external parasites of the birds mentioned, arranged both systematically and according to the host species.

The latter half of the work consists of a series of colored or half-tone plates of the more common species of French birds with similar data to that presented in the first part, placed on the page facing the illustration.

This plan separates the regular resident or migrant species from those of only occasional or accidental occurrence, which is a convenience to the field observer.

Dr. Menegaux's little work will be of great use to the popular bird student and to the visitor to France who desires to become acquainted with its bird life.—W. S.

**Linnaean Society Proceedings.**—The 'Abstract' of Proceedings of the Linnaean Society of New York, for 1931-32<sup>2</sup> is before us, full as usual with ornithological matter of interest.

John F. and Richard G. Kuerzi describe the summer birds of Litchfield, Conn., with an annotated list of species of northern or southern affinities.

Warren F. Eaton has a compilation of eighteen years annual censuses taken on the first week-end of June at Wyanokey, in the Green Mountains of northern New Jersey. The number of species averaged 76 for the first half of the period and 84 for the last half while the number of pairs averaged upwards of 2500.

L. Nelson Nichols discusses Jedediah Morse's lists of American birds, published in 1789 and 1793, and Tom Hazard's diary covering the years 1781-1804, and containing many records of Rhode Island birds.

Charles A. Urner describes the eel-grass blight on the New Jersey coast and its effect on the water birds and also presents a tabulated record of the damage to bird life done by ditching and diking a salt marsh, showing the complete loss of Grebes, Herons, Gallinules and a sad decrease in the numbers of Long-billed Marsh Wrens, Sharp-tailed Sparrows, Swamp Sparrows and Red-winged Blackbirds. There was however, an increase in dryer ground birds such as the Savanna Sparrow, Meadow-lark, Killdeer, etc.

T. Donald Carter and William Vogt review the ornithological years of 1930 and

<sup>1</sup> Les Oiseaux de France par A. Menegaux | Volume II | Oiseaux d'eau et espèces voisines | 80 planches (dont 64 coloriées d'après les aquarelles de J. Eudes) | 148 figures noires | Paul Lechevallier & Fils | Editeurs | 12, Rue de Tournon, Paris-VIe | 1934. Price 50 Francs. (Encycl. Pratique du Naturaliste Vol. XXVII.) Pp., introduction 1-10; main text CCI-DIV; atlas and index, 64-195.

<sup>2</sup> Abstract of the Proceedings of the Linnaean Society of New York for the Year ending March, 1932. Nos. 43-44, 1931-1932. Issued Nov. 15, 1934.

1931, for the New York region, with annotated lists and there are short notes of interest.

The publication is a credit to the society and to the editor.—W. S.

**Kirke Swann's 'A Monograph of the Birds of Prey.'**—Part XII of this notable work,<sup>1</sup> edited by Dr. Alexander Wetmore, was published in October last. It maintains the handsome typographical appearance of its predecessors and carries the work through the Eagles, with a consideration of many of the Kites. If the plan follows that of Mr. Swann's 'Synopsis,' as it apparently does, the work should be completed in two or three more parts.

We are glad to see that Dr. Wetmore does not adopt Audubon's name *washingtoniensis* for the Northern Bald Eagle as has been done by Peters in his 'Check-List Birds of the World.' It seems unfortunate and unnecessary to resurrect a name about which there has been so much doubt.

Two colored plates from paintings by Grönvold, representing *Dryothriorchis spectabilis spectabilis* and *Haematornis cheela cheela* illustrate the part.—W. S.

**Bailey's 'At Home with the Birds.'**—An attractive child's picture-book of birds has recently been prepared by Alfred M. Bailey and Earl G. Wright, both of the Chicago Academy of Sciences. The text and photographs are the work of Mr. Bailey while Mr. Wright has contributed eight excellent full page paintings representing the Baltimore Oriole, Red-headed Woodpecker, Goldfinch, Hummingbird, Rose-breasted Grosbeak, Cardinal, Bluebird and Least Bittern. The book is on sale at all major chain stores for ten cents or may be obtained from the Chicago Academy for fifteen cents postpaid.

It is a splendid thing to have accurate information and good illustrations of our birds made available to everyone and in no way can interest in birds and bird protection be better fostered. We congratulate Mr. Bailey upon this excellent idea and Mr. Wright upon his admirable paintings.—W. S.

**Marelli's 'Bibliography of Argentine Ornithology.'**—Mr. Carlos A. Marelli, Director of the Zoological Garden of La Plata, has published a bibliography<sup>2</sup> of books and papers relative to the ornithology of Argentina. While the list seems to be reasonably complete we note that only parts I and II of the Ornithology of the Princeton University Patagonian Expedition are mentioned, although all five parts have been published and the entire series of reports completed several years ago. The author of the earlier parts and of most of the papers listed on p. 98, moreover, should be W. E. D. Scott not W. L. Scott; only the first paper mentioned on p. 98 belongs to the latter, and in that case there is an error in the page reference. The list however, seems to be remarkably free from obvious typographical errors, and should prove of assistance to Argentine ornithologists.—W. S.

**Recent Papers by Berlioz.**—M. J. Berlioz, curator of birds at the Museum d'Histoire Naturelle, Paris, has published several papers of interest during the past year. These include a sketch of the work of Alcide d'Orbigny,<sup>3</sup> with comments on various of his species and a colored plate of the two Hummingbirds *Oreotrochilus adela* and *Eriocnemis glaucopoides*; another paper<sup>4</sup> discusses two little known Rails—

<sup>1</sup> A Monograph of the Birds of Prey (Order Accipitres). By H. Kirke Swann, edited by Alexander Wetmore. Part XII, October, 1934. Wheldon & Wesley, Ltd., 2, 3 & 4, Arthur Street, New Oxford Street, W. C. 2, London.

<sup>2</sup> Contribuciones al estudio de la Fauna Argentina. Bibliographia relativa a la Ornithologia. Memorias del Jardín Zoológico. Tomo V., pp. 37-106. 1934.

<sup>3</sup> D'Orbigny, Ornithologiste par M. J. Berlioz from the volume 'Commemoration du Voyage d'Alcide d'Orbigny en Amerique du Sud.' Publ. Mus. Nat. Hist. Nat. No. 3, pp. 67-74. 1933.

<sup>4</sup> Note sur Deux Espèces peu connues de Rallidés. Par M. J. Berlioz. Bull. Mus. Paris, VI, No. 4. 1934. Pp. 340-343.

*Porzana nigra*, (Mill.) from the Marquises, and *R. circoleps* Lesson, from the Philippines; the former is related to *P. tabuensis* and seems to be a very rare species, the latter name seems to have priority over *Coturniculus exquisita* Swinhoe and the bird, as suggested, may better be regarded as a subspecies of *C. noveboracensis* of North America.

A collection obtained by M. L. Blancou near Bangui, French Congo, including twenty-two species has been described<sup>1</sup> by M. Berlioz and *Thripas namaquus saturatus* (p. 230) described as new. A fourth<sup>2</sup> paper deals with the mutational dimorphism of Herons, and considers *Egretta dimorpha* of Madagascar (with a colored plate) and related Old World forms as well as *Florida caerulea* and *Dichromanassa rufescens* of America. Curiously enough there is no mention of the much debated case of *Ardea herodias* and *A. occidentalis*.—W. S.

**Friedmann's Recent Papers.**—Ethnological researches in ancient and more modern Eskimo habitations in the Bering Sea and Aleutian regions by H. B. Collins and others have brought to the U. S. National Museum several collections of bird bones which have been reported upon by Dr. Friedmann. One paper<sup>3</sup> deals entirely with a collection from St. Lawrence Island which shows the former presence there of ten species not now known from the island, though all are known from not very distant localities. A second paper<sup>4</sup> reports on collections from several of the Aleutian Islands and from the Alaskan mainland. Of especial interest is the presence on Kodiak Island of a humerus of *Phalacrocorax carbo* presumed on geographical grounds to be the Chinese Cormorant (*P. c. sinensis*). In another paper<sup>5</sup> Dr. Friedmann reviews the species of Hawks of the genus *Chondrohierax* and describes several new forms: *C. uncinatus mirus* (p. 313) from Grenada; *C. u. aquilonis* (p. 314), Tamaulipas, Mexico; *C. u. immanus* (p. 315), Eastern Ecuador. A specimen of Wallace's Standard-wing Bird of Paradise in the Washington zoo gave an opportunity for a study<sup>6</sup> of its display which is recorded with sketches by R. Bruce Horsfall. In still another publication<sup>7</sup> Dr. Friedmann presents further additions to the list of birds victimized by the Cowbird.—W. S.

**Brooks on the Water-fowl.**—The series of articles on North American birds is continued in the 'National Geographic Magazine' for October, 1934, with an installment on the Ducks, Geese, and Swans, both plates and text by Major Allan Brooks. The author-artist is especially at home with the water-fowl and the sixteen colored plates are beautiful examples of his best work, while the terse accounts of the several species present the necessary general information, interspersed with bits from his personal experience. In regard to the identification of Ducks he voices the astonishment of many a beginner when he says: "The old wild fowler squints at a flock of birds too far away to show any color, and instantly identifies them by their contour, wing action, or some character imperceptible to the tyro."

Major Brooks is as much opposed to Loons as he is to various Hawks and claims that every pair of the thousands of Loons that are seen streaming along the Pacific Coast is responsible for the killing of two broods of young Ducks!

<sup>1</sup> Etude d'une Collection d'Oiseaux de l'Oubangui-Chari. Par M. J. Berlioz. Bull. Mus. Paris, VI, No. 3, 1934. Pp. 228-234.

<sup>2</sup> Le Dimorphisme Mutationnel chez les Ardeidés. Par M. J. Berlioz. Ann. Sci. Nat. Zool. 10 ser. XVII, 1934. Pp. 273-282.

<sup>3</sup> Journal Washington Acad. Sci., Vol. 24, No. 2, pp. 83-96, February 15, 1934.

<sup>4</sup> Ibid., No. 5, pp. 230-237, May 15, 1934.

<sup>5</sup> Ibid., No. 7, pp. 310-318, July 15, 1934.

<sup>6</sup> Scientific Monthly, July, 1934, pp. 52-55.

<sup>7</sup> Wilson Bulletin, March and June, 1934, reprint unpagged.



Several half-tones from photographs add to the interest of this excellent article.—W. S.

**Kelso's 'A Key to Species of American Owls.'**—In a handsomely printed little book<sup>1</sup> Leon Kelso and Estelle H. Kelso present several articles dealing with the Owls of the Americas. These are entitled: A Key to Species of American Owls; A List of the Owls of the Americas; Notes on the Habits of the Cholibá Screech Owls; Relation of the Diurnal Habit to Distribution and Abundance of American Owls; and Notes on the Habits of the Spectacled Owls.

The "List" is by Estelle Kelso; the others apparently all by Leon Kelso although the authorship of most of them is not definitely stated.

The "Keys" do not carry one to the subspecies but the "List" includes them and gives the range and an English name for each, with reference to the original description for all forms not included in Cory's 'Birds of the Americas.'

The articles on habits are compiled from various authors and there are half-tone reproductions of plates of three species of Owls from standard works. There are also five plates of outline drawings of the pattern of breast feathers from various species of Screech Owls, usually from the type specimen.

The Kelsos have given us a handy volume with up-to-date information on this rather neglected and difficult group of birds, which will be of great assistance to anyone engaged in their systematic study and will form a basis for further research.—W. S.

**Rusby's 'Jungle Memories.'**—Although the main theme of this book<sup>2</sup> is of particular interest to botanists, it also includes much of value to the ichthyologist, the entomologist and the ornithologist as well. It is a narrative of an expedition across the Andes and through the jungles of South America in search of new medicinal plants. It is crowded with incident and adventure sometimes of an almost fantastical character. The data of ornithological value include discussions of such a variety of themes as mountain-top observations made from above on the flight of an Eagle; the variously colored gorgeous plumage of a species of Trogon; observations on the habits of Rheas on the tablelands, particularly their swiftness in running; interesting species of long-tailed Cuckoos frequenting banana fields; the indescribable beauty of a "swallow-tail" Hummingbird and the habits of a related species in building nests among the thorns of a huge columnar cactus; the flitting and sailing habits of Parrots and Paroquets; notes on the collection of various species of Hummingbird nests; an incident of two serpents frequenting the vicinity of Hummingbird nests; methods used by Indians in obtaining prey of Eagles; observations on the "toonkie" (or Cock-of-the-Rock) and on the Sun Bittern (*Eurypyga helias*); observations on the habits and articulation of Macaws; the avoidance of certain pools by Ducks where the savage carib fishes were present; difficulties presented under tropical conditions in collecting and preserving bird skins; discussion of the song notes of the mysterious Bell-bird; observations on collecting the Amazonian Water Turkey or "snake-bird" and the great Horned Screamer; difficulties in collecting birds shot from tropical tree tops but caught while falling in tangled vines and branches. There are also narrations of an interesting experience in a Gull

<sup>1</sup> A Key to Species of American Owls. By Leon Kelso. U. S. Biological Survey with A List of the Owls of the Americas. By Estelle H. Kelso. Constituting Biological Leaflet No. 4. Intelligencer Printing Company, November, 1934. Pp. 1-101 with eight plates. Privately published.

<sup>2</sup> Jungle Memories By Henry H. Rusby, Emeritus Dean and Professor of Materia Medica, College of Pharmacy, Columbia University, 8 vo., 388 pp., illus. N. Y. McGraw-Hill Company, 1933. Price, \$3.50.

colony with birds, alligators and reptiles, as well as with associations of 'Turkeys,' monkeys and fish. The volume is a veritable encyclopedia of information on certain phases of biological investigations. The theme is a stirring one, the interest is sustained throughout, the author has a beautiful style and the art of using a word or a sentence to describe a breath taking situation. Its reading is very heartily commended.—Jos. S. WADE.

**Economic Ornithology in Recent Entomological Publications.**—References citable under this head seem less numerous than formerly, possibly because the volume of entomological publications as a whole has been reduced. A few items of interest have accumulated, however, since the last installment (July 1932) of these reviews and they are here presented.

Billbugs (*Calendra*, long called *Sphenophorus*).—These weevils often seriously destructive to corn, timothy, and other crops are the subject of a Farmers' Bulletin<sup>1</sup> by A. F. Satterthwait. The author evidently thinks well of birds as controlling agents for he says: "the protection of birds, especially ground feeders, including the Bobwhite and the shore-birds x x x [is one of the] efficient means of preventing crop losses from billbugs" (p. [iii]). He adds "Many kinds of birds have been found feeding on billbugs. Flocks of them gather where the pests are especially numerous, and birds should be fostered and protected regularly to increase the value of their services" (p. 20). Satterthwait mentions 25 species of birds known to prey on billbugs, and the Biological Survey list extends to 120. These are listed, along with a few similar compilations, and notes on insect pests eaten by a large number of common birds in a leaflet entitled "Bird Allies of the Farmer—an Excerpt from 'Hearing before the Subcommittee of House Committee on Appropriations, in charge of the Agricultural Department Appropriation Bill for 1934'" (Reprint, revised, 10 pp., Feb. 1933).

Black Vine Weevil (*Brachyrhinus sulcatus*).—This weevil, a holarctic species, damages a great variety of ornamental and crop plants and is also a pest in green-houses. Literature on the species including mention of its enemies is digested<sup>2</sup> by Floyd F. Smith, and bird foes observed in Great Britain and France are listed. Only one—the Starling—is named for the United States (p. 33). That record is from a Biological Survey publication and further data in the files of the Survey add two species, namely, the Ovenbird and Robin, to the list of bird enemies of the black vine weevil.

Leaf Hoppers (*Cicadellidae*).—Herbert Osborn presents<sup>3</sup> information on leaf hoppers and their enemies similar to that in his comprehensive bulletin of 1912 which was reviewed in 'The Auk' for January 1913 (pp. 129–132). The same arguments are made deprecating the status of birds as enemies of leaf hoppers and they must be replied to in the same manner as in the 1913 review. Birds eat all kinds of insects and cannot be expected to specialize on any certain group. This is their most important function, in fact, and disappointment should not be expressed that leaf hoppers or any other restricted kind of insects do not figure more largely in avian diet.

Sod webworms (*Crambinae*).—Attacking lawn-grasses so severely as sometimes to cause widespread damage the sod webworms were especially in evidence during

<sup>1</sup> How to Control Billbugs Destructive to Cereal and Forage Crops. No. 1003, U. S. Dept. Agr., 22 pp., 25 figs., May 1932.

<sup>2</sup> U. S. Dept. Agr. Tech. Bul. 325, 45 pp., 16 figs., Sept. 1932.

<sup>3</sup> U. S. Dept. Agr., Circ. 241, Leaf Hoppers Injurious to Cereal and Forage Crops, 34 pp. 13 figs

the dry summers of 1930 and 1931. W. B. Noble reports<sup>1</sup> upon them and says something of interest about birds. "Natural enemies," he states, "play a rather important part in the control of webworms. Birds were particularly active in this respect during the summer of 1931. Blackbirds, Flickers, Robins, and Starlings were attracted to the infested areas in large numbers and ate many of the larvae" (p. 2). In addition to the birds named by Noble, Crows, the Crested Mynah, English Sparrow, and Savannah Sparrow are known, according to Biological Survey records, to feed on the larvae, and the Nighthawk and Roadrunner upon adults of Crambinae. Entomological literature contains a number of references to birds eating moths and larvae of this group, scanning of which adds the following species to those already listed, Bobwhite, Kingbird, Wood Pewee, Red-winged Blackbird, Meadowlark, and Barn Swallow.

**Abaca slug caterpillar (*Thosea sinensis*).**—This larva a serious enemy of coconut and abaca in the Philippines "is a thorned species of poisonous character" of a group supposed by theorists to be avoided by birds. Pedro Sison, however, in a comprehensive report<sup>2</sup> on the insect says, "The Crows prey upon the larvae by picking them up with their bills and squeezing out the soft content. The thorny skin or skeleton is not swallowed. As many as fifty of them are to be seen in a flock working every day from morning until late in the afternoon. They never leave the field until only a few of the larvae are left." (p. 179).

**Elder borer (*Achalodes zeae*).**—This insect sometimes forsakes elder to damage corn but is not especially destructive. In making studies of the borer, J. C. Silver found "The Northern Downy Woodpecker x x x attacking young elder shoots in search of x x x [the] larvae. x x x Several clumps of elder in various localities showed distinct signs of attack by birds" (p. 18).<sup>3</sup> The bird work is illustrated.—W. L. M.

**Lid on Food of Taimyr Ptarmigans.**<sup>4</sup>—This is a very detailed account of crop contents of three Ptarmigans (*Lagopus mutus*) from a remote locality on Taimyr peninsula in northernmost Siberia. This time the food items, consisting entirely of vegetable matter, chiefly leaves and stems of willows and saxifrages, were weighed when dry, counted, measured, and tabulated. No percentages are given. For comparison, literature dealing with the food of Ptarmigans from other northern localities is referred to.—LEON KELSO.

**Manuel on Food of the Philippine Weaverbird.**—Canuto G. Manuel, educated in part at the University of Michigan, where he carried on food-habits research, is now fortunately able to do similar work in his native country. The report<sup>5</sup> here reviewed is one of the first fruits of his efforts. The methods of study of the Philippine Weaver, a rice pest, are described in some detail and the results given by localities. In about half of the study Manuel used the ordinary volumetric system of stomach analysis and in the remainder adopted a numerical method. He checked the latter,

<sup>1</sup> U. S. Dept. Agr. Circ. 248, Sod Webworms and Their Control in Lawns and Golf Greens, 4 pp., Nov. 1932.

<sup>2</sup> The Slug Caterpillar on Abaca (*Thosea sinensis* Wlk.), Its Life History and Habits as observed in Davao, and suggestions for Control, Phil. Journ. Agr. 3(3), 1932, pp. 163-187, Pls. 1-6.

<sup>3</sup> U. S. Dept. Agr. Tech. Bul. 345, Biology and Morphology of the Spindle Worm, or Elder Borer, 19 pp., 9 figs., Feb. 1933.

<sup>4</sup> Crop Contents of Ptarmigans from Taimyr. By Johannes Lid. The Norwegian North Polar Expedition with the "Maud" 1918-1925, Scientific Results, Vol. V, No. 2, September 20, 1933. Pp. 3-7.

<sup>5</sup> Observations on the Philippine Weaver, *Munia jagori* Martens, II: Foods and Feeding Habits, Phil. Journ. Sci. 53(4), April 1934, pp. 393-418, 1 fig. (map), 2 tables.

however, by actually measuring the volume of the food items by their displacement of water. Proportions of rice and weed seeds arrived at by the former procedure were 48 and 52, and by the latter, 43 and 57, respectively. Selection of food depended much on availability, as birds collected in rice fields had fed largely on the grain, while those taken at a distance had consumed chiefly weed seeds. The species is almost exclusively a seed-eater, even the young being reared on a diet of weed seeds. The large amount of weed seeds destroyed does not appear significant to the author considering the tremendous annual crop. Experiment indicated that seeds are not passed through the alimentary tract in viable condition. The author concludes that: "The species is harmful to a certain degree when the rice is in head, but otherwise of neutral importance" (p. 417).—W. L. M.

**Gorsuch's 'Life History of the Gambel Quail in Arizona.'**—This is a condensed report<sup>1</sup> of the information gathered during one of the game bird studies financed by the Sporting Arms and Ammunition Manufacturers' Institute.

Although the Gambel's Quail lives in a widely different habitat from that of the Bobwhite, the findings of Gorsuch are much similar to those obtained by Stoddard in his well-known study of the latter bird.

First, the great esthetic and sporting value of Gambel's Quail is discussed, followed by a brief account of plumages and distribution and an extended account of its life history, the early winter being taken as the starting point.

The appearance of winter annuals in limited exposed areas causes the Quail to congregate temporarily in winter flocks of 30 to several hundred birds and unlike the Bobwhite, this species has a resting and a feeding period both in the morning and late evening.

At least four and a half months are required for mating, nesting, and rearing of the young; hence there cannot be two broods a year per pair as has been supposed. Selection of nesting site and nest construction requires about ten days; egg laying and incubation, 38 to 42 days; and rearing of young, two and a half to three months. After this, attention to the young decreases, and the family blends into the covey.

The report on food habits of Gambel's Quail is of especial value, being the first comprehensive one for the species. In the contents of 178 stomachs of adults, vegetable matter comprised 91.6 per cent of the food. Seeds and herbage of mesquite were first in importance, making 22.21 per cent; members of the pea family second, 16.73 per cent; and a wild mustard third, 9.04 per cent. The amount of animal matter, 6.99 per cent, is less than half that taken by the Bobwhite. Grasshoppers were first in importance followed by ants and bugs. Salt was frequently eaten by adults and drinking water is not necessary to the bird's existence.

Gambel's Quail is as sedentary as the Bobwhite, if not more so, moving from its territory only in winter flocks or when pressed by enemies.

Parasites and diseases were found to be of little consequence. Nest losses however, constitute a strong limiting factor. In only 11 of the 44 nests observed did eggs reach the hatching stage.

Ground squirrels, cotton rats, house cats, skunks and ants are the chief enemies of the nests, while Cooper's and Sharp-shinned Hawks are the chief enemies of the adults.

Overgrazing and clean farming are strong checks to the birds' increase. Heavy rains and low soil temperatures during the nesting season are adverse climatic factors.

<sup>1</sup> Life History of the Gambel Quail in Arizona. By David Gorsuch. University of Arizona Bulletin, Vol. V, No. 4, Biological Science Bulletin, pp. 1-89, pls. I-V, figs. 1-4, tables 1-4, May 15, 1934.



While not now facing extermination, the present numbers of Gambel's quail do not compare with those of the past. The rehabilitation of old and creation of new habitats, prevention of overgrazing, less clean farming, less game hoggishness, and scientific game laws are recommended for preservation and increase of the species.

This study is of an ecological type, but it emphasizes, rather than minimizes, the need of taxonomic work. Specific identification of stomach contents (for which there was no space in the report) would have been greatly facilitated if even a complete state or local list of the seed plants or insects of the locality had been available.

The plates, figures, and tables add to the value of the work. From the standpoint of the ornithologist, the conservationist, or the ecologist, this is perhaps the best study on any western game bird that has yet appeared.—LEON KELSO.

**Whitehead on 'The Effect of Arsenic, as Used in Poisoning Grasshoppers, upon Birds.'**<sup>1</sup>—During the past few years increase in grasshopper-control operations has resulted both in apprehension as to the security of bird life and controversy over the effects of arsenical poison on wild birds and domestic stock. Ornithologists and conservationists in general are greatly indebted to Prof. Whitehead for his careful and exhaustive study of this problem.

In this timely publication the author briefly summarizes the history of grasshopper depredations and campaigns for their control in relation to bird life. It is clearly brought out that all who have had much experience with use of the customary arsenical baits are convinced that the poison, when made according to approved formulas and properly applied, can cause little or no injury to bird life.

Prof. Whitehead conducted a number of experiments extending from 10 to 66 days on 144 birds, including Chickens, Turkeys, Ducks, Quail, and nestlings of ten species of song birds. Poisoned bran bait of various strengths and more than seventeen thousand poisoned and unpoisoned grasshoppers were fed the birds. It was found that 3.36 mgs. per ounce of bird weight constituted a slightly toxic dose for a Chicken.

Numerous tables give the results of the various experiments. Domestic Fowl and Quail were confined in pens and left without food for 24 hours. Poisoned bran was then scattered in the pens at the rate of 100 pounds per acre and the birds left another 24 hours without other food. As no indication of poisoning appeared, it was concluded that birds are not injured through picking up well-scattered poisoned bran.

In other experiments grasshoppers dead from poisoning were fed the birds. As a sidelight on such experiments, it is evident from studies made by the Biological Survey that insectivorous birds rarely pick up dead insects but choose live and active individuals. It is apparent therefore that poisoning under natural field conditions is much less likely than under laboratory conditions where the birds were allowed no choice of foods.

It is significant that none of the Domestic Fowls died from eating poisoned grasshoppers even though they fed on them for periods of 66 days and, exclusively in some cases, for 10 days. Lack of other foods forced the Chickens at all times to consume the poisoned grasshoppers on an empty crop. It is generally understood that the poison is more likely to have toxic or fatal results when taken on an empty stomach. Furthermore, it should be pointed out that at least in part of the experiments the birds were fed upon poisoned food over a much longer period of time than poisoned grasshoppers would be available under field conditions.

<sup>1</sup> The Effect of Arsenic, as Used in Poisoning Grasshoppers, upon Birds, by F. E. Whitehead, Okla. Exp. Sta. Bul. 218, June 1934, 54 pp., 8 figs., 11 tables.

Prof. Whitehead showed conclusively that poisoned grasshoppers are not so attractive as unpoisoned insects and that even when no other food is available, less than half as many poisoned as unpoisoned individuals are eaten. Even when the birds fed solely on poisoned grasshoppers, they were able to consume much less than half the minimum lethal dose. The evidence indicates that arsenic does not have a cumulative effect on the fowls; moreover, ingestion of poisoned food does not materially affect the weight or growth of the birds.

The author concludes that Quail received only from 1 to 7 per cent of the minimum lethal dose of arsenic in eating a normal meal of grasshoppers.

In feeding nestling Robins, Prof. Whitehead was able to give them as many as 134 poisoned grasshoppers without affecting normal growth.

Chemical analyses and autopsies made of birds feeding on poisoned insects did not reveal any serious consequences to the birds. Further, it was concluded that there could be no danger in human beings eating fowls that had fed on the grasshoppers.

The general conclusion that poisoned grasshopper bait made according to accepted formulas and properly distributed can cause little or no injury to bird life is in accord with findings obtained by the Biological Survey. Chemical analyses of 22 birds of 8 species taken after feeding in a poisoned field in South Dakota (1931) showed no greater proportion of arsenic than did check birds taken in distant unbaited areas.—

CLARENCE COTTAM, U. S. Biological Survey, Washington, D. C.

#### Other Ornithological Publications.

**Allen, Francis H.**—The Federation of the Bird Clubs of New England. A Record of its First Ten Years. Pp. 1-16. Published by the Federation, 1934.

**Anderson, Rudolph M.**—Effect of the Introduction of Exotic Animal Forms. (Proc. Fifth Pacific Science Congress, 1933. Pp. 769-778.)

**Andrews, Roy Chapman.**—The Gobi Bird Group [at the American Museum of Natural History]. (Natural History, November, 1934.)

**Beveridge, George.**—Increasing Birds in North Uist. (Scottish Naturalist, November-December, 1934.)

**Berry, John.**—Buturlin's Goose (*Anser carneirostris*).—Its Possible Occurrence in Scotland. (Scottish Naturalist, September-October, 1934.)

**Bond, James.**—The Systematic Position of *Lawrencea* and *Laletes*. (Proc. Acad. Nat. Sciences, Phila., LXXXVI, pp. 399-402, September 20, 1934.)—Claims that, on account of their striking similarity in appearance, song and habits, *Lawrencea nana* and *Vireo modestus* are merely representatives of the same bird on Hispaniola and Jamaica respectively and that the former genus as well as *Laletes* should be united with *Vireo*, especially since *Lanivireo* and *Vireosylva* have been so treated.

**Bowen, W. Wedgwood.**—Review of the Subspecies of the African Scrub-Robin (*Erythropygia leucophrys* Vieillot). (Proc. Biol. Soc. Washington, Vol. 47, pp. 157-168, October 2, 1934.)—Two new races described.

**Campbell, Louis W.**—Birds of Lucas County [Ohio] and Vicinity (mimeographed).—Full migration data for several years.

**Chapman, Frank M.**—My Florida Bird Guests. (Natural History, October, 1934.)—A supplement to a previous article on the same subject, published in the January-February issue. Excellent photographs of several familiar birds.

**Conover, H. B.**—A New Trumpeter from Brazil. (Proc. Biol. Soc. Washington, Vol. 47, pp. 119-120, June 13, 1934.)—*Psophia viridis dextralis* (p. 120) Rio Tapajos, Para, Brazil).

**Danforth, Stuart T.**—A New Clapper Rail from Antigua, British West Indies. (Proc. Biol. Soc. Washington, Vol. 47, pp. 19-20, February 9, 1934.)—*Rallus longirostris manglecola* (p. 19).

**Davidson, M. E. McLellan.**—The Templeton Crocker Expedition to Western Polynesian and Melanesian Islands, 1933. Notes on the Birds. (Proc. Calif. Acad. Sciences, XXI, No. 16, pp. 189-198, October 16, 1934.)—Material from Solomon Islands, Santa Cruz Islands and Palmyra.

**Davis, E. W.**—Bird Banding. (Florida Naturalist, October, 1934.)—Experiences at Winter Park, Fla.

**Emlen, John T., Jr.**—Roosts and Night Roosting of Birds. Pp. 1-4. (Ithaca N. Y., 1934.)—Abstract of a thesis for degree of Ph.D. at Cornell University. The daily routine in respect to roosting, seasonal changes, normal and unusual roosting sites, roosting posture and other aspects are considered with a discussion of local studies and a summary of literature on roosts and migration, etc. The headings of the various topics only are given in this abstract.

**English, P. F.**—Game Bird Flushing Apparatus. (Michigan Dept. Conservation Bull. 2, 1934.)—A bar with chain attached fastened to the front of the tongue of the mowing machine to save ground nesting birds in hay fields from being cut to pieces.

**Gordon, Seton.**—The Drinking Habits of Birds. (Nature, London, 1934, No. 3360).

**Kalmbach, E. R.**—Western Duck Sickness a Form of Botulism. With Bacteriological Contributions. By M. F. Gunderson. (Technical Bull, 401 U. S. Depart. Agriculture, May, 1934. Pp. 1-81.)—A detailed account of the malady formerly supposed to be due to the toxic action of alkali salts but now known to be occasioned by the bacterium *Clostridium botulinum*. Inadequate water supply often caused by man's diversion of water from water-fowl resorts is the chief factor concerned.

**Hornby, John.**—Wild Life in the Thelon River Area, N. W. Canada. (Canadian Field Naturalist, October, 1934.)

**Long, W. S.**—The Distribution of the Downy Woodpecker in Eastern Kansas. (The American Midland Naturalist, XV, No. 5, pp. 598-600, 1934.)

**Lönnberg, Einar.**—On the Occurrence of Carotenoid Pigments in the Eyes of Certain Animals. (Arkiv. f. Zool. Svensk. Vet. Acad., Band 28A, No. 4, 1934.)

**Longstreet, R. J.**—Wilson's Plover. (Florida Naturalist, July, 1934.)

**Marelli, Carlos A.**—Etapas Ornitológicas de un Viaje Alrededor de America Tandil [Argentina] 1934.—Account of a visit to the museums and zoological gardens of the United States.

**Mayr, Ernst.**—Notes on Some Birds from New Britain, Bismark Archipelago. (Amer. Mus. Novitates, No. 709, April 4, 1934.)—A new species of *Accipiter* and five new subspecies of *Rhyticeros*, *Hirundo*, *Cisticola* and *Monachella* are described.

**Mayr, Ernst.**—Notes on the Genus *Petroica*. (Amer. Mus. Novitates, No. 714, April 11, 1934.)—Six new subspecies of *P. multicolor* are described.

**Mayr, Ernst.**—Die Vogelwelt Polynesiens. (Mitteil. Zool. Mus. Berlin, Band 19, Pp. 306-323, 1934.)—An important consideration of the zoogeographic relationships of the several island groups of Polynesia with a table showing the distribution of the avian genera.

**Metfessel, Milton.**—Strobophotography in Bird Singing. (Science, May 4, 1934.)—Results of work carried on at the University of Southern California. Cf. also Mr. Brand's paper *antea* pp. 40.

**Mills, H. R.**—Report on the Tampa Bay Rookeries. (The Florida Naturalist, October, 1934.)

**Moore, Robert T.**—A Review of the Races of *Geococcyx velox*. (Trans. San Diego Soc. Nat. Sci., VII. No. 39, May 31, 1934.)—*G. v. melanchima* (p. 459) from Sonora, Mexico, and *G. v. longisignum* (p. 464) from Honduras, are described as new.

**Oberholser, Harry C.**—A Revision of North American House Wrens. (Ohio Jour. Sci., XXXIV, No. 2, March, 1934.)—Wilson's name *domestica* is used for the species because it "seems" to antedate Vieillot's name *aedon* by which the bird has long been known. Wilson's name was published "after September 1808" while Vieillot's "could hardly have appeared" before May, 1809. While this may all be true it would seem better to allow the current name to remain in force until we can be sure of the dates. The House Wren of the region from Michigan, Indiana and Kentucky to West Virginia, western Pennsylvania, western New York and Quebec, is described as new—*T. d. baldwini* (p. 90). It occurs as a migrant farther east.

**O'Roke, Earl.**—A Malaria-like Disease of Ducks. (Univ. Mich. Forestry and Conservation Bull. No. 4, 1934.)—A very careful study of a disease caused by a parasite, *Leucocytozoon anatis*, present in the blood of the Ducks and transmitted to them by bites of the black fly in which the organism occurs during a large part of its life cycle. The disease proves especially destructive to ducklings.

**Riley, J. H.**—One New Genus and Three New Races of Birds from the Malay Region. (Proc. Biol. Soc. Washington, Vol. 47, pp. 115–118, June 13, 1934.)—*Chalcocornus* (p. 115) for *Acomus inornatus*, and new subspecies of *Harpactes*, *Cyanops*, and *Anthreptes*.

**Vogt, William.**—The War on Winged Predators. (American Forests, June, 1934.)—A most convincing argument for the preservation of our Hawks and Owls.

**Serle, William, Jr.**—Notes on the Breeding Birds on the Island of Hoy, Orkney. (Scottish Naturalist, September–October, 1934.)

**Whitley, Gilbert.**—The Doom of the Bird of Providence. (Australian Zoologist, VIII, Part 1, May 9, 1934.)—Very interesting old documents are described and quoted showing the details of the slaughter of the Norfolk Island Petrel (*Pterodroma melanopus*) by the early settlers. Daily records of the number of birds killed total upwards of 170,000.

**Wynne-Edwards, V. C.**—Inheritance of Egg-Colour in the 'Parasitic' Cuckoos, (Nature, November 25, 1933.)—Discusses the question of the division of Cuckoos of the same species into several "gentes" each laying a peculiar type of egg corresponding to the color of the eggs of its host. This is a proven fact and the question is how are these gentes perpetuated when the Cuckoo, as has been shown, is polyandrous. The author suggests that the offspring of a given female are not necessarily of the same gens. "The gens factors are presumably a series of multiple allelomorphs, and sex-linked. The female Cuckoo having only one X-chromosome can never be heterozygous for gens. The fact that the male has a pair does not matter, because he does not lay eggs."

#### The Ornithological Journals.

**Bird-Lore.** XXXVI, No. 5. September–October, 1934.

A Living Memorial to Louis Agassiz Fuertes.—Dedication of the Water-bird refuge at Cayuga Lake, Ithaca, N. Y.

A Landsman at Sea. By Clarence M. Beal.—Experiences on the New Jersey coast, photographing birds.

Ruby-throated Hummingbird. By Jean P. Gessell.—Study of nesting.

Bird Notes from Bed. Part IV. By Mark F. Emerson.—Photographs of White-throated and White-crowned Sparrows.



There is an "autobiography of the Golden Plover" by Dr. A. A. Allen and an excellent report on the Gulf coast sanctuaries by R. P. Allen, both illustrated.

**Bird-Lore.** XXXVI, No. 6. November-December, 1934.

Some Traits of the Northern Pileated Woodpecker. By Maurice Brooks. With two photographs.

An Unusual Bird Study. By Clara McCalmount.—A tame Mourning Dove.

A Horned Owl Uses a Red-tail's Nest. By R. S. Harrison.

Downy Goes Visiting. By Elizabeth Sampson.—Entered shed through hole.

Dr. Allen's biography deals with the Tree Sparrow and there are the usual annual reports of the officers of the Audubon Association.

**The Condor.** XXXVI, No 5. September-October, 1934.

Oceanic Currents and the Migration of Pelagic Birds. By S. C. Brooks.—An interesting and suggestive paper calling attention to the coincidence of plankton forms on the surface, due to currents, and the abundance of birds, and calling for a study of the ocean as a whole by those ornithologists who voyage over it—"its waters, their chemistry, their flow, the life in them as well as over them."

Notes on the Xantus Tradition. By Harry Harris.—An interesting biography of this man so closely identified with the ornithology of Cape San Lucas.

Bird Notes from Southern Arizona. By Berry Campbell.—Notes from Santa Cruz Co., the Huachucas and Patagonia.

The Vocal Apparatus of Some North American Owls. By Alden H. Miller.—An anatomical study of eight species of North American Owls compared with Beddard's accounts of Old World species. The "hoot" is produced not by a semilunar membrane but by membranes in each bronchus at the posterior end of the sound chamber. In *Tyto*, lack of sex dimorphism, ligamentous connection of the bronchi and fusion of cartilaginous parts "set it apart from the other Owls."

The Classification of Some American Pigeons. By James L. Peters.—*Melopelia* is merged with *Zenaida* which retains only two of the forms usually referred to it, the others going into *Zenaidura*, while *Zenaidura yucatanensis* becomes a race of *Zenaida aurita*.

Rev. F. C. R. Jourdain claims that Peters in deciding against the recognition of *Phalaropus fulicarius jourdaini* Iredale, did not have a single specimen of this form before him and argues for its validity.

**The Condor.** XXXVI, No. 6. November-December, 1934.

Nesting of the Clark Nutcracker in California. By James B. Dixon.—With interesting photographs of nests and incubating bird taken in Mono Co., Calif.

Notes on the Sociology of the Long-tailed Yellow-breasted Chat. By Eric Campbell Kinsey.—We note the innovation of elongated English names throughout the paper. Fortunately the departure from the 'Check-List' does not involve the technical names!

Perplexities in the Making of a State List of Birds. By Joseph Grinnell.—An interesting consideration of all the different categories of bird records, i. e. endemic, introduced, casual or accidental as well as fossil and recently extinct, and a query as to which class of bird students—biologists, faunal students, sportsmen, esthetes, aviculturalists, etc., a state list shall be adapted.

*Porzana flaviventer woodi* (p. 243) is described from El Salvador, by van Rossem and *Baeolophus inornatus plumescens* (p. 251) from New Mexico by Grinnell.

**The Wilson Bulletin.** XLVI, No. 3. September, 1934.

Observations on Owls in Ohio. By Thomas Mason Earl.

A Critical Study of the Distribution and Abundance of *Dendroica castanea* and

*D. striata* in the Southeastern States during the Spring and Fall Migrations. By Thomas D. Burleigh.—Data seem to show that the Blackpoll is abundant on the coast but rare in the interior in autumn, apparently crossing the mountains in Maryland or northern Virginia in the course of a southeastern flight from its breeding grounds in the far Northwest. The Bay-breast seems much more abundant than generally supposed.

Relationships between Diet and Extent of Parasitism in Bob-white Quail. By W. O. Nagel.

Cycles of Migration. By Leonard W. Wing.

Field Experiences with Mountain-dwelling Birds of Southeastern Utah. By Alden H. Miller.—An annotated list.

Walter John Hoxie. By William C. Fargo.—A biography with abundant extracts from his notes and a bibliography. Mr. Hoxie died at St. Petersburg, Fla., July 30, 1934.

**Bird-Banding.** V, No. 4. October, 1934.

The Operation of Homing Instinct. By Frederick C. Lincoln.—Refers mainly to banded birds in North America especially to Mr. McIlhenny's experiments described in 'The Auk' for July 1934.

The Status of Cape Cod Terns in 1934. By Oliver L. Austin.

Eastern Field Sparrow Migration in Tennessee. By Amelia R. Laskey.

The Distribution of Michigan Recovered Eastern Evening Grosbeaks near the Atlantic Seaboard. By M. J. Magee.—The line of flight seems to be to the coastal region of Massachusetts, Connecticut and Rhode Island.

A Migration Study of Catbirds from 1929 to 1934. By Geoffrey Gill.

A female Purple Finch recorded by C. L. Whittle had a rosy rump when trapped in 1932, bright yellow in 1933 and rich dark rosy in 1934.

**The Oölogist.** LI, No. 9. September, 1934.

Census of Birds seen in a River Journey. By Frank Bellrose.—Down the Illinois River on August 29, eighty American Egrets in the list.

A Few Cowbird Notes. By H. F. Price.—A list of fosterers.

Success in the Tinicum Marshes. By Edward J. Reimann.—A nest of the Coot on June 9, 1934, with seven eggs in the overflowed marshes just below Philadelphia, as well as numerous nests of the Florida Gallinule.

Pinoneros. By W. E. Griffie.—Experiences with the Pinon Jay.

**The Oölogist.** LI, No. 10. October, 1934.

A Collecting Trip to Bird Island. By R. H. Eames.—On the Texas Coast.

**Iowa Bird Life.** IV, No. 3. September, 1934.

Additional Records of the Starling in Iowa. By Philip A. DuMont.

Data on Migrant Birds at Emmetsburg, Iowa. By LeRoy T. E. Weeks.

**The Nebraska Bird Review.** II, No. 4. October, 1934.

A Systematic Analysis of the Measurements for 404 Nebraska Specimens of Geese of the *Branta canadensis* Group, formerly contained in the D. H. Talbot Collection. By P. A. DuMont and Myron H. Swenk.—An abundance of data tabulated in various ways. The specimens were related as follows: *B. c. hutchinsii* 17; *B. c. leucopareia*, 325; and *B. c. canadensis*, 62.

The Synopsis of the Birds of Nebraska. This third part covers the Pelicans and Cormorants.

**The Migrant.** V, No. 3. September, 1934.

Habits of the Warbling Vireo. By Harry C. Monk.—At Nashville, Tenn.

Some Observations on Ducks. By G. B. Woodring.—In Tennessee.

Much other matter dealing with Tennessee ornithology.

**The Gull.** XVI, No. 9, September, 1934.

Some Interesting Water Ouzel Nests. By Mrs. C. W. Lockerble.—In Logan, Utah.

Several California Field Lists.

**The Murrelet.** XV, No. 3. September, 1934.

Some Food Resources of our Waterfowl in the Pacific Northwest. By Theo. F. Scheffer.—Detailed account of the vegetable food in the Washington lakes and coasts.

Bird Notes from Idaho. By William B. Davis.

Notes Toward a Comparison of the Avifaunas of North America and South China. By Robert C. Miller.

**Inland Bird Banding News.** VI, No. 3. September, 1934. [Mimeographed.]

Annual Expedition to Green Bay to Band Gulls and Terns. By W. I. Lyon.

Suggestions for Collecting External Parasites of Birds. By H. S. Peters.

**St. Louis Bird Club Bulletin.** III, Nos. 7 and 8; October and November, 1934. [Mimeographed.]

Notes on the return of the Wood Ibis; on birds seen on an automobile trip to California; and numerous notes and lists of Missouri birds.

**The Raven.** V, No. 8. August–September, 1934. [Mimeographed.]

Notes on behavior of young Cooper's Hawks; on Ravens in the Blue Ridge and various items on Virginia birds.

**The Redstart.** I, No. 9; II, Nos. 1 and 2. September to November, 1934. [Mimeographed.]

Many notes and short papers on bird life of W. Virginia and Ohio.

**The Night Heron.** II, Nos. 6 and 7–8. June, July–August, 1934. [Mimeographed.]

Devoted to studies of the birds of Missouri and adjacent states.

**The Ibis.** (13th ser.). IV, No. 4. October, 1934.

Birds of the Southern Sahara and Adjoining Countries in French West Africa. Pt. V. By George L. Bates. (concluded.)

Notes on the Birds of the Balearic Islands. By P. W. Munn.

Frederick Faber: An Early Danish Ornithologist. By Dr. Otto Helms.

Notes on Display in the Hummingbirds *Phaethornis superciliosus* and *Pygmornis ruber*. By T. A. W. Davis.—From studies in British Guiana.

Notes on Some Birds of the Lake Chad Area, N. E. Bornu. By F. D. Golding.

The Birds of Northern Portuguese East Africa. Part V. By Jack Vincent.

Notes on Icelandic Birds. Including a Visit to Grimsey. By David Lack.

Remarks on Albatrosses and Mollymawks. By G. M. Mathews.—Presents a key to the eight genera which he recognizes and a review of the races of *Diomedea exulans* with comments on *Nealbatrus chlororhynchos*.

Notes on East Greenland Birds, with a Discussion of the Periodic Non-breeding among Arctic Birds. By G. C. L. Bertram, David Lack, and B. B. Roberts.—Result of a trip to Scorsby Sound in 1933.

**Bulletin of the British Ornithologists' Club.** CCCLXXX. October 30, 1934.

Exhibition of C. B. Ticehurst of a dissected head of a Cormorant showing a small accessory bone in the occipital region. P. R. Lowe stated that this was a sesamoid and was not connected with the occipital, and that it occurred also in the Anhinga.

A longitudinally bicolored Budgerigar, blue and green, was exhibited and its origin discussed. Several new birds are described from Mecca, Portuguese Guinea, Abyssinia, Tanganyika and Rhodesia and Mathews proposed new names for a num-

ber that are preoccupied as well as a new generic name *Davisona* (p. 23) for *Hydroornis* and described a race of Petrel from St. Helena.

A new genus *Eremalauda* (p. 19) is proposed by W. L. Slater for *Calendula dunni*.

**British Birds.** XXVIII, No. 4. September, 1934.

Additions and Alterations to the British List. By H. F. Witherby.—Three forms added as occasional visitors and three races recently described from the Hebrides.

Breeding of Temmick's Stint in Scotland. By Geo. R. Edwards.

The Gannet Colonies of Iceland. By Brian Roberts.—Six occupied Gannet colonies exist in Iceland at present consisting of about 13,600 pairs.

Movements of Ringed Birds. Addenda III. By H. F. Witherby and E. P. Leach.—With maps showing movements of Starling, Blackbird and Cuckoo. Report continued in the October number where maps for the Heron, and Lapwing are shown.

**British Birds.** XXVIII, No. 5. October, 1934.

A Census of Water-Birds on the Highgate and Kenwood Ponds. By Julian S. Huxley and Alan T. Best.—For the first six months of 1934.

An Attacking Tawny Owl. By W. A. Cadman.—Repeatedly struck the author as he climbed to the nest.

**British Birds.** XXVIII, No. 6. November, 1934.

On the Breeding Habits of the Corn Bunting in North Cornwall. By Lt. Col. and Mrs. B. H. Ryves.—An important and detailed study supplementing a previous account (Vol. XXVIII, pp. 2-26),—a single male was found to have seven nesting females.

Some Breeding Habits of the British Willow Tit. By George W. Temperley.

**The Avicultural Magazine.** XII, Nos. 9, 10, 11. September to November, 1934.

Notes on New Zealand Birds. By Sydney Porter. (Nos. 9 and 11).

Numerous articles on the keeping or breeding of various species in aviaries.

Plates (two of them colored) in the three issues illustrate respectively, the Diamond Sparrow (*Steganopleura guttata*), Dufresne's Waxbill (*Coccyzygia dufresnii*) and the Norfolk Island Parrakeet (*Cyanorhamphus cooki*).

**The Oölogists' Record.** XIV, No. 3. September, 1934.

Contains an account of the Eighth Ornithological Congress; a defence of egg collecting; a plea for an extension of the field of oölogical research; on the nesting of Wood Wrens (*Phylloscopus sibilatrix*); notes on Cuckoos from eastern Cape Province and a photograph of the nest of the African Fantail Flycatcher (*Erannornis*).

**Bird Notes and News.** XVI, No. 3. Autumn, 1934.

An Estonian Bird Sanctuary. By A. H. Keenan.—On the Baltic Island of Saaremaa.

Many notes and short articles on bird protection in England and a circular pleading for the preservation of the Peregrine against which the Pigeon fanciers of the country are carrying on a campaign of extermination.

**The Emu.** XXXIV, Part 2. October, 1934.

The Swamp-hen (*Porphyrio*) in Western Australia. Are there two Species? By H. M. Whittell.—With colored plate by Cayley.

Notes on the Movements of Swifts. By A. E. Bridgewater.

The Seasonal Movements and Migrations of Birds in Eastern New South Wales. By P. A. Gilbert.

Birds of the Wellington District, N. S. W. By Geo. W. Altofer.—Average number of each species observed during each month of the year.

Bird Notes from Toolern Vale. By J. J. Bryant with an account of the sanctuary by John M. Gray.—Abundantly illustrated with excellent photographs.



Associations of Small Insectivorous Birds. By G. R. Gannon.—A general discussion with quotations from various authors in all parts of the world on the subject.

Birds and Mangroves in Tropical Queensland. By A. J. Marshall.

**The South Australian Ornithologist.** XII, Part 7. July, 1934.

Devoted entirely to J. N. McGilp's account of The Hawks of South Australia, with descriptions, accounts of habits, and many text figures.

**Alauda.** (Ser. III) VI, No. 3. July–September, 1934. [In French.]

Birds and Territory. By Margaret M. Nice.—The theory is described and criticisms considered, after which the necessity for some limitations to the theory is discussed and suggestions for future study outlined.

A Contribution to the Knowledge of the Avifauna of Turkey in Europe [Thrace]. By Drs. Hans Kummerlowe and G. Niethammer.

On the Coloration of Certain Forms of Owls of Chinese Turkestan. By G. P. Dementieff.

On the Distribution of *Dryobates leucotos* in Caucasus. By G. P. Dementieff.

Notes on the Ornithology of Normandy with some Sketches. By Robert Hainard.—With numerous clever pen sketches showing activities of Hawks, Cormorants, Gannets, Plovers, Terns, and Jaegers.

On the Food of the Shrikes. By Paul Madon.—Detailed analyses for a number of species.

Remarks on the Nesting of *Cettia cetti cetti* in western France. By J. deChavigny.

The Buzzard in the Department of Vosges. By A. Claudon.

Reflections on a Case of Nomenclature: *Larus leucopterus*. By N. Mayaud.—Discusses at length the identity of *Larus leucopterus* Vieillot and considers that it is not the *L. leucopterus* Faber and that *L. glaucoides* Meyer must be used for the Iceland Gull.

An Obituary of Edmund Selous. By J. Delamain.

**L'Oiseau.** IV, No. 3. 1934. [In French.]

The Eighth International Ornithological Congress.

To India. By J. Delacour.

A Contribution to a Biogeographic Study of the Hummingbirds of Eastern Brazil. By J. Berlioz.

Ornithology of Bass-Bretagne. By E. Lebeurier and J. Rapine. (continued).

Studies of the Variations of *Falco peregrinus*. By G. Dementieff.

The Birds of Kwangsi, China. By K. G. Yen. (concluded.)

*Systema Avium Rossicarum*. By S. A. Buturlin and G. P. Dementieff. (continued.)

The Nature of the Solid Matter in the Gizzard of Granivorous Birds. By R. Salgues.—Discussion of the relative amounts of silicious and calcarious matter in the Chicken, Turkey, Pheasant and Guinea Fowl.

On the Quest of the Ocellated Turkey. By G. Taibell.

On the Biology of the Grebe—*Podiceps ruficollis*. By G. R. Mountfort.

**Journal für Ornithologie.** LXXXII, Heft 4. October, 1934. [In German.]

Studies of the Density of Colonization in the Breeding Area. II. The Brandenburg Pine Woods. By Gottfried Schiermann.

Habits of the Pheasants of the Chinese-Tibet Frontier. By Ernst Schafer.

A Contribution to Our Knowledge of the Avifauna of Asia Minor. By Hans Kummerlowe and Gunther Niethammer.

Life History Notes on Some Birds of North Angola. By Rudolf Braun.

The Golden Eagle in Scotland. By H. A. Gilbert.—With a series of remarkable photographs of the birds and nesting site by Arthur Brook. Translated from English.

Rare Birds of New Britain. By P. Otto Meyer.

Why is there no Crane Migration Route along the Bosphorus? By G. v. Sshweppenburg.

**Ornithologische Monatsberichte.** 42, No. 5. September-October, 1934. [In German.]

The Influence of the Hamburg Sewer Water on the Abundance of Birds on the Lower Elbe. By Nicolaus Peters.

*Meliphaga analoga* and its Allies. By Knud Paludan.—Discusses the species and their geographic races.

Four New Subspecies of Paradise Birds. By E. Stresemann.

*Treron curvirostra* a new Species for Java. By E. Stresemann.

A Contribution to Our Knowledge of the Siberian Ptarmigan. By B. Stegmann.

*Lagopus l. koreni* Thayer and Bangs; *L. l. dybowskii* (p. 150) subsp. nov. Stanovo Mts.; and *L. l. brevirostris* Hesse. are recognized.

**Der Vogelzug.** V, No. 4. October, 1934. [In German.]

Home-finding Trials with *Hirundo rustica* and *Delichon urbica*. By H. Warnat—

Twenty-one of the former Swallow and six of the latter were taken from their nesting locality to points from 390 to 550 km. westward and within four days eleven *Hirundo* and one *Delichon* were back. Full details of the experiment are given.

Normal Swallow Flight at Wismar Compared with the Catastrophe-Year, 1931. By H. v. Viereck.

Sex-Hormones and Bird Migration. By H. Desselberger and G. Steinbacher.

On Experimental Restriction of Migratory Impulse through Female Sex Hormones. By H. Giersberg and R. Stadie.

On the Migration Route of the Chaffinch. By G. v. Bochmann.

Mass Sleeping Places of the White Wagtail. By F. Goethe.

There are several long lists of returns of banded birds.

**Beiträge zur Fortpflanzungsbiologie der Vögel.** X, No. 5. September, 1934. [In German.]

The breeding and migratory range of the Black and White Storks in the Iberian Peninsula. By Otto Steinfatt.

Has the Semen of the Male an Influence on the Egg color? By Franz Groebbel.

Observations on *Halcyon chloris cyanescens* Oberh. By August Spennemann.

On Runt Eggs. By Fr. Dietrich.

**Beiträge zur Fortpflanzungsbiologie der Vögel.** X, No. 6. November, 1934.

Breeding and Hunting of the Wood Owls in the Berlin Zool. By Otto Schnurre.

On Flight pairing of the Swifts. By E. Christoleit.

On the Eyrie of the Peregrine in Bird Colonies. By Hermann Grote.

Some Observations of *Elanus coeruleus hypoleucus*. By Aug. Spennemann.

**Der Ornithologische Beobachter.** XXXI, Heft 12. September, 1934. [In German.]

Results of Banding of Titmice in Switzerland. By Werner Haller.

The Coloration of Feet in Bird Skins as a Source of Error. By Dr. Lentz.

**Der Ornithologische Beobachter.** XXXII, Heft 1. October, 1934. [In German.]

Joy and Sorrow in a Sanctuary. By Robert Amberg.

**Der Ornithologische Beobachter.** XXXII, Heft 2. November, 1934.

The Hoopoe: Study at the Nest. By J. Bussmann.

The Storks in Switzerland. By Max Bloesch.

## CORRESPONDENCE.

## Alleged Excessive Collecting.

November 13, 1934.

Editor of 'The Auk':

As a pertinent addition to the letter of the Marquess of Tavistock, published, together with a reply by myself, in your issue of July 1934, I trust you will give space to the appended communication by the Marquess of Tavistock which appeared in the 'Avicultural Magazine' for October 1934, page 272.

Sincerely yours,

FRANK M. CHAPMAN.

## THE AMERICAN WHITNEY EXPEDITION.

"I am relieved to hear that the collecting methods of the Whitney Expedition were less destructive than I had been led to believe. Possibly our member who gave me the information may have something to say in reply, particularly in regard to alleged collecting on islands for which permits had been refused.

I must say I still think that the number of Masked Parrakeets taken was unnecessary and excessive.<sup>1</sup>

In regard to obtaining material for museums from birds bred in captivity, it is a common error of ornithologists who are not aviculturists to suppose that birds reared in confinement at once show such aberrations and abnormalities as to render them useless for purposes of scientific study. As a matter of fact, it takes several generations of captivity breeding before the slightest variation from the wild type begins, and an immensely long period before the original type is swamped and lost by the domestic variations."

(Signed) TAVISTOCK.

## Preservation of Species in Aviaries.

Editor of 'The Auk':

The letter from the Marquess of Tavistock which was printed in the July 1934 issue of 'The Auk' contains reference to a movement concerning which we have heard only from sponsors and not at all from critics. The proposal referred to is that of bringing specimens of Parakeets, now rare in the wild, to the aviaries of southern California with a view to perpetuating the species in captivity.

It certainly seems to some friends of birds that such a move would result only in further diminution in number of the species concerned, for with few exceptions birds do not continue to breed indefinitely in aviaries. Caging birds is one of the most effective ways of using them up and in most cases is either directly or indirectly a drain upon the wild supply. The wonder is that any countries are so complaisant as to permit continued exploitation of their avifaunas for the cage-bird trade. Certainly, if all were as strict in their requirements as is the United States, cage-bird traffic would amount to only a fraction of its present volume and would cease to be a threat to the continued natural existence of rare species.

<sup>1</sup> In view of the Marquess's implication that this species may have been exterminated by the Whitney Expedition, it is interesting to note that in 'Aviculture' for November, 1934 (p. 15) he writes: "The Masked Parrakeet, as I have already said, has been almost exterminated by fruit growers and by the depredations of the imported mongoose."—F. M. C.

Furthermore, as Dr. F. M. Chapman points out in his rejoinder to the Marquess' letter, birds reared in captivity are no longer true representatives of the wild species, witness blue Budgerigars and white Java Sparrows. If all the survivors of a certain rare form were caged, their descendants (provided breeding occurred and the young were reared) in a few generations probably would depart from natural conformation and color to such an extent as not to be typical of the species. The latter would then be almost as truly extinct as if the last individual had perished in the wild.

The place to save threatened species is in their native range and it would seem that efforts to preserve them can best be directed toward the provision of absolute sanctuaries fully adequate in size and in number—a matter in which the parent country, not another, should be the most vitally interested.

W. L. MCATEE,  
Principal Biologist,  
U. S. Biological Survey,  
Washington, D. C.

Oct. 1, 1934.



## OBITUARIES.

ROBERT HENRY WOLCOTT, Chairman of the Department of Zoology at the University of Nebraska, who was elected an Associate of the American Ornithologists' Union in 1901 and a Member in 1903, died at Lincoln, Nebraska, January 23, 1934.

Dr. Wolcott was born at Alton, Illinois, October 11, 1868, son of Robert N. and Agnes (Swain) Wolcott. Most of his early life was spent at Grand Rapids, Michigan, where he was graduated from the High School in 1885, following which he continued his education at the University of Michigan, where he received the B. L. degree in 1890, the B.S. degree in 1892, and the M.D. degree in 1893. Though qualified to practice either law or medicine, Dr. Wolcott chose to follow the career of a biologist, and was immediately engaged, during the summers of 1893 and 1894, on a survey of the fish supply of Michigan waters. In 1894 he received a call to continue his graduate studies and to act as the only assistant to Dr. H. B. Ward in the Department of Zoology at the University of Nebraska, where in 1895 he received the M.A. degree and was made an instructor in the Zoology Department. Three years later (1898) he was promoted to be an Adjunct Professor and four years subsequently (1902) he became an Assistant Professor and the Demonstrator in Anatomy, which was followed in 1903 by a promotion to be Associate Professor of Zoology, and in 1905 to a full Professorship in Anatomy. It was Dr. Wolcott, largely, who developed the pre-medical work in the University of Nebraska, then under the administration of the Zoology Department. In 1909, he was made Chairman of the Department of Zoology and acting Dean of the College of Medicine. Following the location of the College of Medicine of the University at Omaha, Dr. Wolcott (in 1915) severed official connection with that College, and assumed the more restricted duties of Professor of Zoology and Chairman of the Department. This was his status at the time of his death, after forty years of continuous service at the University.

A student of all living things, especially animals, Dr. Wolcott maintained throughout his life a special interest in birds and insects. His first publications (1884 to 1899) dealt largely with the nesting of different Michigan birds observed in the vicinity of Grand Rapids. After his removal to Nebraska, he continued the publication of bird notes, first in 1899 in a short paper in the *Bulletin of the Michigan Ornithological Club*, on the birds noted in Nebraska in the fall and winter of 1898-99, and later in the *Proceedings of the Nebraska Ornithologists' Union*. In 1899, Dr. Wolcott was the leader in organizing, first a Nebraska Ornithological Club of Lincoln, and later, with the coöperation of Professors Lawrence Bruner and W. D. Hunter of the Department of Entomology, and Mr. I. S. Trostler then of Omaha, the Nebraska Ornithologists' Union. In this latter organization, Dr. Wolcott served as Secretary for five years, and on his retirement from that office was elected President of the organization, to which office he subsequently was re-elected three times.

Dr. Wolcott was a great lover of the out-of-doors, and an expert field naturalist. Probably as the result of his early work in Michigan on fresh-water biology, Dr. Wolcott developed a special interest in the American water mites, and through his researches carried on at Nebraska, beginning about 1898, he became the generally regarded American authority on this group. He had a great interest also in butterflies and beetles, especially in the family of tiger-beetles, in which he made a detailed study of the color variations. During the last few years of his life, he devoted a great deal of labor to a textbook in beginning zoology, which was published under the title *Animal Biology* only a short time before the onset of his fatal illness. The

ornithological contributions of Dr. Wolcott consist chiefly of a considerable number of short articles and scattered notes on bird observations, published in the principal ornithological periodicals. He was one of the co-authors of the "Preliminary Review of the Birds of Nebraska," published in 1904, and author of "An Analysis of Nebraska's Bird Fauna," published in 1909, his two most important contributions to ornithology.—M. H. SWENK.

THOMAS SPENCER, elected an Associate of the American Ornithologists' Union in 1928, died at the age of 51 at Studley Park, Tobago, B. W. I., February 11, 1930, and was buried the following day in Hope Chapel Cemetery, The Hope, Tobago. For the following information regarding his activities, thanks are due to E. G. Wortley, Director of Agriculture of Trinidad.

Spencer was born at Birmingham, England, Nov. 20, 1878, and his early education from 1886 to 1892 was received at the Vicarage Road School, Astor Manor, and later at the Birmingham Municipal School of Art. By profession he was an artist and draughtsman. He held "certificates in Free Hand Drawing, Drawing from Cast, Model and Shading from Models; Machine and Geometrical Drawing; Painting and Design; Perspective and Drawing from the Antique." In his early years he was employed by the firm of E. C. Dutton of Birmingham, Engravers and Illustrators, but in 1904 he embarked in business for himself in wood engraving, electrotyping and general illustrating. During the Great War he served for two years and a half in the tool room of the Sidderley Deasy Air Craft Co. of Coventry. After the War he joined the firm of Gordon Grant and Co. as an estate manager in Trinidad, B. W. I. From October 1, 1922 to the close of 1928 he served as Instructor in Drawing and Handicraft in the Government Training College and during the last two years of his life he resided on the Brothersfield Estate on the island of Tobago.

According to F. W. Urich, Entomologist of the Imperial College of Tropical Agriculture, "Spencer was a good field ornithologist. His principal occupation was the painting of birds in water colors and he was particularly good at rendering the specimens in their true colors. He left a good many water color paintings of Trinidad and Tobago birds." This collection has been acquired by Sir Charles Belcher, Chief Justice and author of the 'Birds of Trinidad and Tobago.'—T. S. P.

## NOTES AND NEWS.

AS A RESULT of action at the last annual meeting, the limited membership lists of the Union were very nearly filled. However, at the present time, several vacancies still exist viz: 1 Fellow, 3 Corresponding Fellows and 12 Members. Nominations for these vacancies should be made before July 15, 1935, but, under the present By Laws, not more than ten Members can be elected in one year.

PERSONS desiring copies of the group photograph taken at the recent Chicago meeting of the A. O. U. may obtain them at \$1.00 each, post paid, from the photographers, the Kaufmann and Fabry Co., 425 South Wabash Ave., Chicago. An indispensable blue print key to this photograph has been prepared by Mr. A. F. Ganier, 2507 Ashwood Ave., Nashville, Tenn., and may be had gratis from him, but return postage should be enclosed with the application.

STATUS OF BIRDS OF PREY AND HERONS IN WISCONSIN. Until very recently, the birds of prey and the Great Blue Herons and Bitterns enjoyed no protection whatsoever in Wisconsin.

Anyone who had courage enough to say or publish a word in defense of any of the Herons was immediately pounced upon by the fishermen, particularly trout fishermen, as a sentimental crank.

As for the Hawks and Owls, a word in their defense was immediately met by a howl of protest from game breeders and hunters in general. The munitions manufacturers played no small part in spreading malicious propaganda.

Under the old set-up, the Wisconsin Department of Conservation, which in itself was not interested in economic ornithology, was handicapped by a legislature which was still less concerned with Hawks or Herons and consequently these birds were ruthlessly slaughtered.

In the recent past the Commission was made non-political insofar as was possible and the only real handicap to progress was public sentiment. The Commission did not desire to enact legislation which was not favored by the majority of hunters and fishermen.

Then the Department of Ornithology of the Milwaukee Public Museum accidentally learned of the destruction of one of Wisconsin's finest Great Blue Heron rookeries which was situated within a few miles of one of our state fish hatcheries.

Violent protest at this outrage in the 'Milwaukee Journal' brought the whole Heron and Hawk and Owl controversy into the limelight. Public indignation was aroused. Various small and loosely organized bird groups throughout the state, and many individuals and particularly the conservation division of the Wisconsin Federation of Woman's Clubs under the able leadership of their conservation Chairman, Mrs. E. La Budde, came to the rescue. The editorial staff of our largest daily papers and particularly of the 'Milwaukee Journal' printed columns, pointing out the real worth of the species in question. The public became conscious of the loss of a valuable economic asset.

The well-organized groups of fishermen and hunters were in the very small minority as compared to the multitude who are more interested in seeing a bird alive than a dead fish in a basket.

In 1934 the conservation department wisely took the opportunity to place upon the protected list all Herons and all Hawks with the exception of the Goshawk, Cooper's Hawk and Sharp-shinned Hawk, and all Owls with the exception of the Great Horned Owl.

The Department is to be highly commended for taking a decidedly forward step in real conservation.—O. J. GROMME, *Milwaukee Public Museum*.

WITH ITS first 1934 meeting, October 1st, the Tennessee Ornithological Society began its twentieth year of active bird study. The original group of five founders has grown to a membership of 150 and there are now three flourishing chapters of the Society located at Knoxville, at Nashville and at Memphis, respectively.

On October 15th, the Nashville Chapter celebrated the 19th anniversary of its founding, with an interesting meeting. The four living founders were present and presented certain phases of the Club's history.

THE CAMBRIDGE BIRD CLUB, 5a Market Place, Cambridge, England, has just published a book by David Lack on 'The Birds of Cambridgeshire,' a work of 118 pages of text and a folding map of the area, the result of the combined work of members of the Club since it was founded in 1925, and especially of the author who was at the University from 1929 to 1933.

DR. ARTHUR A. ALLEN has just issued an admirable popular bird book consisting of the "autobiographies" of birds which he has been contributing to 'Bird Lore' for some time past with a series of beautiful full page bird portraits from paintings by George M. Sutton. It is published by The Comstock Publishing Co., 124 Roberts Place, Ithaca, N. Y., Price \$3.50, and will be reviewed in the April issue of 'The Auk.'

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES announces that, at the request of Dr. T. Gilbert Pearson, he has been relieved of the executive responsibilities of President of the Association, and on October 30, 1934, was elected President Emeritus.

Mr. Kermit Roosevelt was elected President and Mr. John H. Baker, who since December, 1933, has been Chairman of the Board of Directors, was elected Executive Director.

Since then Mr. Warren F. Eaton and Mr. Roger T. Peterson have been added to the Association's staff; the former in charge of Hawk and Owl protection and the latter in educational work.

A PAMPHLET by J. Clark Salyer issued by the U. S. Department of Agriculture in October last, discusses in detail the problem of water-fowl restoration and the plans adopted by the Biological Survey. The effect of the disastrous drought is discussed and the results of investigations as to water conditions on the breeding grounds are described. Then the proposed restoration of former conditions by flooding and maintaining emergency water supplies is outlined. This is all very important and the Survey is to be congratulated upon having a definite policy outlined for which emergency funds may be applied for but it would seem still more important that all shooting of Ducks should be abandoned for a year or two to allow the stock of wild birds to recover from the terrible effects of the drought. Unfortunately no such step was permitted during the shooting season just passed. Mr. Salyer speaks of the Survey's energies in the interest of wild life restoration having been released under the new leadership. This implies that they were restrained in the recent past but it would seem that the same influence, whatever it may be, still restrains the Bureau in taking the drastic steps that its members and chief undoubtedly know are necessary. Let us hope that this may be overcome.



HAWK MOUNTAIN in eastern Pennsylvania, described by Earl L. Poole in 'The Auk' for January, 1934, was leased last autumn by Mrs. C. N. Edge and all shooting of Hawks stopped. Mrs. Edge has an option for the purchase of the mountain with the idea of converting it into a permanent wild life sanctuary. It is to be hoped that the necessary funds may be secured for this purpose and that title to the property may be given to some permanent incorporated body which will preserve it in perpetuity and forever stop the shameful slaughter of Hawks which has been going on there for many years.

AT THE LAST meeting of the A. O. U. the council discussed means of increasing the content of 'The Auk' without adding to the cost of publication, and the enlargement of the type-bed was suggested as a means to this end. Consequently with this issue the size has been increased nearly half an inch in width and five eighths of an inch in length which, with the same pagination per number, will enable us to add nearly twenty pages of matter without appreciable additional expense or conversely will accommodate the same amount of matter in twenty pages less. The reduction of the margin by so small an amount will, we feel sure, not impare the appearance of the journal nor interfere with its binding.

THE FIFTY-THIRD stated meeting of the American Ornithologists' Union will be held at Toronto, Canada in the third week of October 1935. The Secretary of the local Committee is Mr. L. L. Snyder, Royal Ontario Museum, 100 Queen's Park, Toronto, Canada.

# TEN YEAR INDEX

TO

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1921 - 1930

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